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AMERICAN VETERINARY REVIEW.

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VOLUME V.

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AMERICAN VETERINARY REVIEW,

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ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

ANATOMY.

In our domestic animals we call the foot the extremity of the leg, and even only the extremity of the digit, for, considered in a zoological point of view, the foot extends from the carpus or tarsus to the last phalanx, inclusive.

The foot of the horse forms an extremely important study on account of the numerous diseases to which that member is subject, and also of the value of the motor powers required from the horse; the old horsemen expressed this importance by the aphorism, "no foot, no horse." This truth finds daily its sad applications in the premature ruin of large numbers of horses rendered useless because of the defects in their feet. All the qualities of a horse are, indeed, considerably diminished and can even be entirely destroyed, by the bad conformation or accidental alterations of those essential organs. The study of the foot of the horse has been the object of many voluminous works,

such as those of Girard, Bouley, Bracy, Clark, Anker, Leisering & Hartmann, Lafosse, Gourdon, Reynal, Defays, and many others, to which we refer for the more complete description of the organization of the foot.

This organ is composed of two orders of parts, some *internal*, organized and sensitive; the other *external*, formed of a horny, organic substance, the hoof, but entirely void of the property of vital sensitiveness. The internal parts are bones, three in number, the second and third phalanges, and the small sesamoid, which form by their reunion the articulation of the foot; special ligaments, which maintain the connections of these bones; tendons, which fill the triple office of agents of transmission of motion, articular ligaments and organs of support of the weight of the body; a fibro-cartilaginous apparatus, superadded to the third phalanx, and which completes, so to speak, posteriorly, and increases the surface by which it rests on the hoof and transmits to the ground the pressure which it receives. These are the lateral cartilages and the plantar cushion; arteries, veins, lymphatics and nerves, remarkable for their number, development and disposition; and at last, a ligamentous, sub-horny membrane, or keratogenous apparatus, forming a continuation of the skin, which surrounds the parts of the foot like a stocking, and upon which the foot rests, as a shoe on the human foot. In this apparatus are formed: the coronary band, which forms a rounded projection at the separation of the skin and the hoof, and which serves as a matrix to the periople and the wall; at its surface are seen numerous villousities or papillæ; the podophylous or laminated tissue which is spread upon the anterior face of the third phalanx, and is remarkable by the sheet of parallel laminæ which it presents at its surface, which are separated by deep furrows in which are received the analogous laminæ of the internal face of the wall; the velvety tissue or villous tunic which covers the plantar cushion at the inferior face of the foot, and is the secreting organ of the sole and frog, its surface covered with villousities similar to those of the coronary band, and like them, of various sizes, and lodged in the porosities of the internal face of the sole and frog.

The external parts of the foot are four in number ; the wall, the sole, the frog and the periople. These form, together, a horny box, the nail, or hoof, which is adapted exactly by its internal cavity to the external contour of the sub-horny membrane, contracting with it an intimate union by a reciprocal reception, and thus completing the structure of the foot, furnishing to the sensitive parts an apparatus, thick, hard, resisting and at the same time elastic, which makes one with them, and protects them against violence from the substances with which the foot, from the nature of its function, must necessarily come in contact. The horny substance which constitutes the hoof has a fibrous aspect ; it is hollowed all over by cylindrical canals, whose superior extremities, widened into a funnel shape, cover the papillæ of the matrix of the hoof, either at the coronary band or velvety tissue, while the inferior opens in the wall upon the plantar border, in the sole and frog, at the external or inferior face. These canals are rectilinear, except those of the frog, which are flexuous ; their diameter varies from 0,02 to 0,2 or 04^{m.m.} These tubes are not only hollowed in the horny substance ; they have also proper walls, of very great thickness, formed of numerous concentric layers, received into each other. These are lamellæ of pavementous epithelium, which constitute the horny tissue ; in the walls of the horny tubes, they are grouped flatwise around their inferior canals, and stratified from within outwards, so as to form successive and concentric layers ; in the intertubular horn, these lamellæ are not stratified in a direction parallel to that of the tubes, but at right angles with it. Around the tubes, the lamellæ have an oblique intermediate direction. A granular opaque substance fills up the space lying between the horny tubes and the papillæ.

The hoof, which is a part of the epidermis, develops similarly, that is, by the constant formation of cells in the layer which corresponds to the mucous malpighian body, at the expense of the plasma thrown off by the numerous blood vessels of the keratogenous membrane. The velvety tissue is the starting point of the elements of the sole and frog ; the perioplic band is the organ secreting the periople ; and the coronary band proper, the matrix of the wall. Upon these different parts, the epithelial cells mul-

tiply, and flatten into lamellæ, in the direction of the surface of the keratogenous membrane, as they spread from it. The wall then grows from its superior to the inferior border, and the other parts of the wall from their internal to their external face. The villousities of the coronary band and of the velvety tissue are the organs around which accumulate the epithelial cells; their presence defines, consequently, the tubular structure of the horn.

The laminæ, in the physiological state, do not co-operate in a sensible manner with the formation of the wall; the keraphyllous laminæ form themselves at the coronary band, at the origin of the podophyllous; they descend with the wall, gliding at the surface of the layer of cells which separates them from the laminated tissue, a movement of descent which is facilitated, however, by the multiplication in the same direction of the said cells. When the podophyllous tissue is inflamed, whether exposed or not, its latent activity soon manifests itself. It gives rise to a great quantity of hard horn, hollowed, as seen by Gourdon, with tubes, and oblique in a direction backward. These tubes, more irregular than those of the normal wall, are disposed in a parallel series; they are in form, round, villo-papillæ, which have developed on the face border of the laminæ. In these cases of production of horn by the action of the podophyllous tissue alone, one never sees, between the sensitive laminæ, distinctly formed horny laminæ in the middle of the other cells, as it is observed in the wall proceeding from the coronary band. The horn which rises on the surface of the podophyllous, immediately after the removal of a piece of the wall, is not a permanent one; it must be replaced by the horn of the coronary band. This change is complete, microscopical examination proving that the wall which descends from the coronary band, provided with keraphyllous laminæ, engages itself under the temporary wall, and slides by the action already described over the surface of the soft cells of the laminated tissue. As soon as this tissue, modified by inflammation, is covered over by the permanent wall, its papillæ become atrophied, and its action returns to the limited boundaries of physiological condition. (*Chauveau.*)

The foot is an organ of support and an apparatus of elasticity ;

it is through it that the whole animal machine maintains its relations with the ground, and that it adapts itself in its various movements, so to speak, to its roughness. It is this that, as a last spring, distributes and modifies the force of all the movements of the horny mass of the body, whose columns, the legs, may be considered as the resultant. Intermediate with the body and the ground, the foot transmits all the actions of weight reaching it, and also between the body and the sensorium, toward which all sensations resulting from its contact with surrounding external substances return, the foot then becoming at the same time an organ of feeling. To adapt it to this triple formation, nature has given to it three properties, in appearance incompatible with each other, which it has, however, harmonized, viz: first, a very great external hardness, due to its horny envelope; second, a certain amount of flexibility, the combined result of the physical properties of its cortical envelope and of the mechanical disposition of its different parts, and thirdly, a highly developed sensibility resulting from the high organization of its tegumentary membrane. (*Bouley.*)

(*To be continued.*)

PHTHISIS PULMONALIS VERMINALIS.

BY C. H. PEABODY, D.V.S.

(*Read before the United States Veterinary Medical Association.*)

Mr. President and Gentlemen: Hoping the following report of some cases and autopsies made by myself on cattle suffering with phthisis pulmonalis verminalis will be interesting, I beg to ask your attention for a few minutes.

In October, 1880, I was requested by the Secretary of the Board of Health to accompany him to the village of Ashton, in the town of Cumberland, R. I., to the farm of a Mr. Jenks, and examine some cattle reported as having pleuro-pneumonia.

On arriving at the farm we obtained the following history: August 25th, 1880, Mr. J. bought, in Brighton, 47 head of calves, said to have come from New York State. On getting a short way from Brighton, some of the calves began to cough. They arrived at their destination on August 29th. Three or four days after one calf died, and then shortly after, four or five a week, then three or four a day, until we saw them.

The following symptoms were observed: A cough, short and harsh, gradually becoming hoarse, and finally assuming a muffled sound, was detected, the animals having the appearance of great fatigue. The respiration varied from 70 to 112 a minute, and was labored and abdominal, and each breath being accompanied with a slight cough or groan. Some of the calves were constipated, while others had diarrhœa.

In some of them the appetite remained good until 24 hours before death, emaciation gradually taking place. The pulse was weak and irregular. The animals stood with their backs arched; the heads down; the hind legs drawn under the body; the fore feet spread apart, with the elbows turned outwards. Frothy secretions oozed from the nostrils. The coat was staring; the skin shriveled; the eyes dull, and in a few cases there was an abundant discharge of saliva, in which was found contained filaria and their eggs, which had been coughed up. On examination of the thorax by auscultation, there was a peculiar, in some places a crackling sound; in others a loud wheezing, but no complete loss of respiration over any part of the lungs. On percussion, an abnormal resonance was observed over the greater portion of the lungs. The temperature ranged from 103 to 106 F. The duration of the disease varied from 15 to 20 days.

Having obtained the history of the disease, we proceeded to make the post-mortem of some already dead, and of some destroyed for that purpose. The description of the lesions found in one will, with slight exceptions, answer for the whole.

The first animal examined had been dead about 24 hours. In the thoracic cavity, we found an abnormal amount of serum; the membrane lining it was healthy, and the pericardium without patches of lymph or false membrane. The heart was filled

throughout with a hard coagulum. The extended surface of the lungs was paler than normal, its tissue emphysematous in places, and slightly mottled in others. Upon cutting through the large bronchia, we found a large number of thread-like worms, from $\frac{3}{4}$ of an inch to $1\frac{1}{2}$ inches in length, and in knots or masses. These were immersed in frothy mucus, which seemed to fill the air passages completely.

These worms were found in every branch and ramifications of the air passages, to their utmost extremity. A few lobules seemed congested, and in some places the capillary blood vessels were broken down, and slight hemorrhage had taken place, small clots of blood being found in the bronchial tubes. It was noticed that all the tissues of that animal, as well as those of such as were killed, had a sourish smell. The lymphatic glands of the throat and abdomen were enlarged: other abdominal organs healthy.

There was no treatment pursued with the calves, beyond slight fumigations. The other cattle were treated by inhalation of burning sulphur. The internal treatment consisted of turpentine, iron and gentian, after they had been removed from the place where they had been kept. I have examined the lungs of a number of the old cattle destroyed since my first visit, and have not been able to find any of the filaria.

Allow me now to detain you a few moments longer in order to show you the size of the eggs of these worms, and to say a word as to the tenacity of life of the embryo. The specimen which I am going to present, I owe to the kindness of Mr. Norman Mason, an excellent microscopist of Providence, R. I. Upon measurement, this gentleman found the egg to be from $\frac{1}{300}$ to $\frac{1}{500}$ of an inch in diameter. In conclusion, and to show you how long after animal is destroyed, and no matter what poisonous preparation is used, life remains in the embryo, I will state that the lungs, from which these specimens were obtained, were sent to the office of the Board of Health on a Tuesday, and the examination made on Thursday. Some of the filaria were then soaked in picric acid and glycerine, from 30 to 40 minutes, and then placed under the microscope, when the embryo could be plainly seen moving in the egg.

SINGULAR CASE OF DISEASED TESTICLES.

BY R. WOOD, V. S.

(Read before the United States Veterinarian Association.)

June 17, my attention was called to a black stallion, 20 years old, which had been worked in an order-wagon for a grocery establishment for ten or twelve years, and up to that time had been in good health, when all at once the appetite became poor. The owner called my attention to a swelling of the off testicle, which he for the first time had seen that morning while grooming him. He informed me that the animal at the time he bought him had had one of his testicles removed, but the other could not be found. Finding by examination a small testes on the near side, and on the opposite side apparently a large tumor, I supposed the case to be one of disease of the end of the spermatic cord, and that by treatment it would possibly end in the formation of pus. I prescribed warm fomentations three times each day. On the 19th I was informed the animal was better, and was eating well and at work. Dec. 10th my services were again required; found the animal much thinner in flesh, appetite nearly gone, and upon examination found what I diagnosed as schirrous testicle, exceeding hard and painful, and the animal unable to rise without help. I was then informed that he had not been able to work for several months, and that they thought him worthless, but disliked to kill him, he being a pet of the family. But becoming tired of caring for him, sent for me to kill him. He was accordingly shot; the testicle removed; the small one weighing $3\frac{1}{2}$ ounces, the large one $5\frac{1}{2}$ lbs.—[The appearance and microscopical examination of the two organs will be given in our next issue. The small testicle is atrophied and the other in all probability a large sarcocele. —ED.]

TO THE PROFESSION.

BY F. S. BILLINGS, V.M.

In a certain way the REVIEW has changed hands. It has been the organ of the profession through its Association. It is that no longer. With the late meeting in Boston this connection ceased. The REVIEW has passed into the hands of Dr. Liantard. He alone must shoulder the whole burden. In this there is no change, for he has always carried this burden too much alone. Too much of the work of not only editing, but supplying the material for its pages, has devolved upon him. This reflects upon the profession. They are willing to pay for edification, but not willing to mutually contribute to edify and educate one another. We plead guilty, also, but, we have always thought, not without cause. What the *cause* was, is no matter; it no longer exists. Dr. Liantard having assumed the burden financially, as well as editorially, we have cheerfully given our assent to become an assistant not in name, but in deed. Deeds speak; words are soon lost. It is to be hoped that the work of supplying material for the REVIEW will not fall entirely on the few men Dr. Liantard has asked to assist him. We shall all do our part, but it is to the outsiders that we look for aid.

The advancement of the profession as a unit, is, it is to be hoped, equally dear to every one of us. The question of the suppression of contagious animal diseases is one which is gradually assuming its proper place in this country. That of the relation of animal diseases to the public health, will not be less slowly developed. Both are *the* questions upon which the profession depends. Through these questions, we interest a nation; while as practitioners we are but of interest to the customer. As practitioners alone, we can *never* get beyond the stable door; the back door which enters to the family, to the legislative halls, to public advancement of our body, is not now, and never will be, open to or opened by the practicing veterinarian. It is only when we manifest our ability to save the community from large losses,

from contagio-infectious causes; it is only when we demonstrate our ability to become valuable and faithful guardians of the public health, more valuable in many respects than the M.D., that we can look for public advancement as a profession. The lazy men of the profession, those whose ideas never ascend above a dollar, may be satisfied with the present condition. We have too many of them; they do nothing themselves, and condemn all endeavors on the part of others' professional advancement, as the boiling over of youths, mere enthusiasts, who, in their august opinion, are everything but practical. Thankfully, while a comatose body, the profession is not all dead. There is some live wood among all this dead punk.

It is well known that there is a just need of reliable statistics, with reference to the prevalence of contagious diseases among the animals of this country, as well as of the causes which exist in them dangerous to the public health. We wish personally to advance these questions, and hereby appeal to all our colleagues, regular and irregular, to all men who have an interest in the well-being of our profession, to take note of these things, and report to us every case which comes to their knowledge, it matters not of what kind, whether rabies, glanders or pleuro-pneumonia. Especially do we desire to gain some knowledge about tuberculosis among our cattle, and trichina among our swine. In this regard we would beg our colleagues to revise their dairies and farms, and report us where tuberculosis is found, and the number of cattle on such farms or in such dairies. Causes leading to the extension of the disease, such as hereditary influences, the breathing of infected air from adjoining cattle having the disease, is an open question of no secondary value both to the profession and to cattle growers. We do not know that an authentic case of anthrax has ever been recorded in this country; but if colleagues would kindly send to us the blood, sun-dried upon glass slides, of any suspicious cases, we would be much obliged.

As to trichinosis among our swine, we should like the stumps of pillars of diaphragm from the largest number of hogs possible, from all parts of the country during the coming year. They can be packed in 5% solution of carbolic acid, in preserve jars, and

thus collected and sent to us per express, C.O.D., 155 Tremont St., Boston.

If we have this professional assistance, we promise to make a valuable report of the result thus obtained, at the end of the year, in the REVIEW.

EDITORIAL.

OUR FIFTH VOLUME.

Once more we present ourselves before our readers, to thank them for their past patronage and for the assistance many of them have so kindly rendered.

In issuing the first number of the fifth volume of the REVIEW, it is gratifying to us to state that this representative of veterinary interests in the United States has met with a reception so kind, and a support so friendly, that necessity has arisen for more care, greater attention, and increased labor in its preparation than it originally demanded, and that, for this reason, the United States Veterinary Medical Association, under which it was first issued, has seen fit to relieve itself of any further control in its issue, and has transferred all its interests to the former editor.

In accepting the onerous duty of continuing the publication of the REVIEW, and all the responsibility of its issue, the editor fully appreciates the importance of the task before him; and while he deems it unnecessary for him to say that he will more than ever endeavor to do full justice to his position, and strive to lay before its readers all the current subjects of interest to the profession, he will take this opportunity to remind his friends that the pages of the REVIEW will always remain open for any article worthy of publication, which practitioners may desire to make public; and he hopes that in the future still more than in the past, members of the profession will look upon it as a means of exchanging their different views and experiences.

Fair and honest criticism will be allowed, but all personal remarks will find their way into oblivion and the waste basket.

We will take this opportunity to appeal to our friends in Canada, to not entirely forget us. The REVIEW never has been, and never will be allowed to become the representative of any particular society or association, of this college or of that school. The editor will endeavor to remain strictly what the name of the journal should indicate, above all things, American in character. To conclude, we are pleased to say that several of the most prominent veterinarians in the country have promised us their valuable assistance, and we are, therefore, able to promise a larger scope and greater variety in the style of its contents, and will the sooner be enabled to place the REVIEW in the position which such a publication is entitled to occupy, especially now that our profession is making such rapid strides in popular esteem, and the membership of the profession is so rapidly increasing in numbers and qualifications.

PATHOLOGY AND SURGERY OF THE FOOT.

Desirous of presenting our readers with as many new and original communications on veterinary matters as may be consistent with the issue of this paper, and thinking that the publication in the REVIEW might be a good medium to make public some of the European works in the most concise manner, and thus fill the need which most of our practitioners must have felt, we have solicited from Mr. Zundel, a celebrated veterinarian of Alsace-Lorraine, the authorization of translation of the articles he has written in his revised copy of the Dictionnaire of D'Arboreal, upon the foot and its diseases. The gentleman has very kindly consented, and we begin to-day the publication of those articles. They will each occupy monthly pages of printed matter, and be arranged in such a manner that when completed, they may be separated from the main body of the volume of the REVIEW, and if desirable, can be bound in a separate volume, constituting then a distinct—and we need not say an excellent—

treatise upon the pathology and surgery of the foot. The only variation which we propose to make in the subject will consist in some few added remarks, relating to parts which we consider important, and to which no special reference appears in the work of Mr. Zundel.

FIGHTING PLEURO-PNEUMONIA.

Though many bills relating to the handling of contagious diseases in our domestic animals were presented to Congress during the last session, and none of them succeeded in passing, it will be gratifying, however, to know that the interests which are at stake will not be entirely overlooked. Out of the appropriation which was granted to the Department of Agriculture at Washington, a sum has been put aside for the purpose of doing what will probably be about the best thing possible under the present conditions. It is proposed to appoint in the different States regular veterinary inspectors, in fact several are already appointed, who shall have for their duty to investigate the extent of some diseases, and specially of pleuro-pneumonia, to trace all the seats and subjects of disease, to report weekly at the bureau the conditions of the stock, and thus to keep within its present boundaries the scourge where it is known to exist already. While this may seem at first sight a small way of dealing with this plague of bovines, it appears to us that some good will be obtained by this action, viz.: the prevention of its possible spreading beyond the States where it exists now, and the protection of our western herds from a possible contagion. This once obtained, it will be easy to put a value on the infected animals, and to come to a positive estimate as to the cost of stamping it out altogether from the country.

STATE PROTECTION TO VETERINARY SURGEONS IN NEW JERSEY.

We reprint elsewhere the act which was presented to the Legislature of New Jersey, and which, after having passed the

Assembly, was rejected by the Senate. Not interfering with the rights or doings of any one engaged in the practice of veterinary medicine, the bill only asks for a protection of a title for which the possessor of a regular degree has worked hard. Yet with the approbation of many of the legislators of New Jersey, the bill failed to pass in the Senate. We understand, however, that strong efforts are to be made for the reconsideration of the vote. Our friends of the little State are deserving credit for their attempt, and have our sincere wishes for success.

PLEURO-PNEUMONIA IN THE WEST.

Amongst the sensational reports which appear in the newspapers in relation to the existence of pleuro-pneumonia in our western States, none were probably more serious and apparently correct than those which were published some time ago.

The Department of Agriculture, aware of the effect that such news might have, not only in this country, but in Europe, took at once the necessary steps to investigate what truth was in it, and it will be gratifying to all interested parties to read the two letters which we publish from the veterinarian of the Department, C. P. Lyman, which establishes most evidently the falsity of the report.

NOTICE.

Mr. W. R. Jenkins, who has for several years largely given his time and attention to the veterinary branches of the book trade, and who we believe has to-day the largest assortment of veterinary works in the country, has recently purchased the plates of "Fleming's Veterinary Obstetrics," of which he thus becomes the only American publisher. He expects also to publish "Dun's Veterinary Medicines," "Hill's Manual and Diseases of the Dog," and a recent revised work on equestrianism, "Baucher's System of Horsemanship."

TRANSLATIONS FROM FOREIGN JOURNALS.

PHYSIOLOGICAL PATHOLOGY.

UPON THE CULTURE OF THE MICROBE OF SMALL-POX IN SHEEP

BY M. H. TOUSSAINT.

In 1863, Beale observed germs in small-pox. Hallier and Zurn, in 1867, saw them in the pustules of that disease as well as in the blood. Chauveau in 1868, in his study of viruses, noticed that the contagion of small-pox takes place by the peculiar particles which are found in the pustules. Lastly, Coze and Feltz, Klebs, Cohn, Keber, Weiger and several others have also seen a micrococcus in the serosity of the pustules, in the blood and in the secretions. But amongst these authors the interpretation of the fact differs. Thus Hallier writes that the micrococcus is a term of a generation between two fungi the *Pospororle Herbariaum* and the *Rhizopus Nigricans*. Zurn assimilates it to the micrococcus of the variola of man. He has seen in them threads which assist their motion, and particularly locates them in the cul de sac of the glands of the hair follicles. Cohn was nearer the truth. He has observed spores of $\frac{1}{1000}$ of a millimeter and bacteries in balls (*Kugelbacterien*) of the group of the Schizomycetes. Nowhere have I seen that the microbe has been cultured.

This disease gives rise to serious danger in some parts of France, but especially lately on the coast of the Mediterranean Sea. Brought by African sheep, in which it is harmless, it spreads rapidly, and is accompanied with loss of 60 to 70 per 100.

The disease lasts at least thirty-five days. It is almost impossible, on account of the number of animals imported,* and the

*In 1878 the number of sheep imported from Algeria to France was 733,000. It keeps increasing every year.

long quarantine they ought to be subjected to, to prevent its disasters, without interfering with the breeders; and again it is not possible, at first sight, to recognize the animals upon which it is in the period of incubation, which may last twenty days.

It is thus a serious affection, and worthy of all attention. Preservative inoculation is resorted to in some countries, but in meridional districts at least, has proved scarcely less fatal than the contagion itself, and many have given it up.

A veterinarian, M. Loubet, having sent me the serosity of a pustule of small-pox, I diluted it to the twentieth, at last, and inoculated a yearling lamb with it. After ten days it gave large local pustules of the size of a five francs piece* and a general eruption. It is from these pustules of inoculations that I obtained the serosity which I cultivated.

The cultures were made in bouillons of meat of sheep, beef, rabbits, and even of yeast. It is in that of rabbits and sheep that they succeeded best. After two or three days of culture the liquids were loaded with bacteries and spores; on the surface of the liquid, pellicles are formed, containing them in great quantity; then after four or five days, the microbes fell to the bottom in the shape of spores, and the liquid clears up.

The microbe of small-pox then presents itself under two conditions, that of bacteria and that of spores. Bacteries are very small the first day of cultivation, probably not more than one, three or four thousandths of a millimeter in length. They are very active and are seen moving rapidly under the microscope. They then lengthen and subdivide. Seldom are more than two segments seen united; sometimes, three or four; usually one of them is larger than the other. From the second to the third day of culture, the longest of the two bacteries is seen giving off two spores, one at each end, and sometimes another in its middle; the smallest bacteria usually has only one. It appears then as a minute dumbbell, the spore having a larger diameter, and sometimes reaching the one thousandth of a millimeter; it is slightly oval, and very refracting, smaller than that of anthrax. First cultures

*About the dimensions of a silver dollar.

are less successful than those of from the fifth to the tenth series ; these last in one day form a compact sheet covering the whole surface of the liquid.

I have inoculated the liquid of the culture to sheep ; the result was pustules which reach their maximum after fifteen or eighteen days. These pustules never suppurated, and disappeared without giving rise to any general eruption and without cicatrices ; one could scarcely feel a little hard indurated nucleus in their seat of evolution. The temperature rose towards the fifteenth day, from a fifth to the tenth of a degree.

I shall soon determine if the inoculations with culture have given immunity to the animals, as I am now inoculating with the virus of animals affected with contagion, animals which have recovered from the cultivated small-pox.

Cultures of the microbes of small-pox were carefully filtrated. The filtrations observed during the three weeks had kept its limpidity. Two cubic centimeters of it injected under the skin of the axilla of a sheep, immediately after the filtration, has produced no local or general phenomena ; the tumor resulting from the injection had disappeared the next day, and left no trace of its presence.—*Gazette Medicale*, (Academy of Sciences.)

COMPARATIVE PATHOLOGY.

INOCULATION OF GLANDERS TO THE DOG.

BY M. V. GALTIER.

The dog, like the rabbit, and more surely than the latter, takes glanders by inoculation. This is known of old. Here are the results of my personal experience :

Amongst the numerous dogs that I have inoculated with the virus of glanders, I have not met with one refractory case. But if the dog takes the disease when it is inoculated with the virus

the morbid phenomena remained generally localized at the point of inoculation. Shortly after the operation, from three to seven days, one notices a redness appearing in the region; at the point of inoculation a small ulcer shows itself, cupuliform, granular, yellowish in its aspect, analogous to the chronic farcinous ulcer of horses. This wound secretes abundantly a very thin pus, oily, yellowish-gray, which often dries in scabs over the ulcer, which, nevertheless, continues secreting under this scab.

The dog recovers quite rapidly from the effects of this inoculation, and the wounds, after increasing for several days, discontinue their growth, become rosy, their secretion by degrees diminishing; they cicatrize, and the virulency disappears.

It is quite generally admitted that in glanders of the dog the lesion and virulency remain localized at the point of inoculation; it has been even stated that this was the rule, without exception. This is incorrect; for while it is true that the lesions do ordinarily appear only at the point of inoculation, it is not always so. In one dog inoculated on the forehead, I have seen ulcerous sores appear at the point of inoculation and sometimes after, another formed itself on the external face of the right thigh, then one on the back, but even with this generalization, the disease ended and disappeared altogether, as I proved it afterwards, by inoculation and post mortem. Upon another dog inoculated behind the poll, I also observed ulcers at the point of the inoculation, but also another on the back. Lastly, in the dog, and in the rabbit, I have observed that if the lesions may remain localized at the points of inoculation, it sometimes happens that the virulency is disseminated through the economy, or at least in the lymphatic system. I once transmitted glanders to a donkey by inoculating him with the product of the ganglion of the flank of a rabbit, which presented lesions only at the ears, where it had been inoculated; I have also given glanders to a donkey by inserting the pulp of a ganglion of the flank of a dog, inoculated near the shoulders, and which presented lesions only at that point. The virulency can then be generalized, though the lesions may remain localized. It thus seems that the virus of glanders may spread in the organization of the dog and sometimes in that

of the rabbit, without giving rise to anatomical lesions except at the points of the termination of inoculation.

It has been said that a first attack of glanders gave to the dog immunity after recovery.

From my experiments, it results that dogs can take glanders repeatedly, two, three, four, five and, perhaps, a greater number of times. But little by little, after a series of successive inoculations, its receptivity, already comparatively so slight compared to that of volipeds, diminishes. Glanders transmitted to dogs is characterised by lesions less and less marked, and there is reason to think that through the influence of repeated inoculations, their receptivity will disappear.

Another fact observed during my experiments tends to demonstrate that the power of the virus diminishes when cultivated in the organism of the dog already inoculated a first, second, third or fourth time; donkeys inoculated with the virus of a third, fourth or fifth glander have had a disease more latent and less acute; they ordinarily live from three weeks to a month after inoculation, and have presented less acute lesions than do those inoculated with the virus of horses, or that of a first dog-glander.—*Gazette Medicale*.

PATHOLOGICAL ANATOMY.

ON THE PRESENCE OF A FUNGUS IN THE PULMONARY TISSUE IN PLEURO-PNEUMONIA.

BY M. POINCARÉ.

After relating the principal researches relating to the microbes, which, according to some authors, constitute the virulent agent of the disease, the author says:

I have had thus far the opportunity of examining the lungs of eight cows which had died from pleuro-pneumonia. In all, with little variation, I have found the following facts:

The bronchial and pulmonary cavities are nearly filled with a magma, which at first sight, seems to be formed by epithelial cells and nuclei. However, this same muscular proliferation exists in the hyperthrophied or oedematous zones of the connective tissue. But with a little care, and especially if one uses the iodochlorure of zinc as a reactive, one soon sees that in these magmas are found detritus, undoubtedly coming from the exterior, such as particles of straw, hay and starch granules, &c. This first kind of accumulation indicates only a high degree of prostration or depression of the nervous system, which suppresses the reflexes of expulsion. But along with these vegetable remains, one finds threads belonging to a cryptogamic production, which are living, and continue to manifest their vitality after the death of the animal. The mycelium of this vegetable parasite seems to extend quite through the pulmonary tissue in all directions, and embracing it in all its threads and meshes, a condition which renders its isolation difficult. But upon the edges of a section it is seen spreading here and there, either broken or perfect, almost always by keeping the section under a glass cover, or even simply between two glass plates, in an aqueous mixture, one may see after a variable period of time, that the threads of the mycelium lengthen, multiply and form a free, or rather well-defined mesh. The development takes place even when the tissue has been preserved for some time in glycerine, or in a mixture of water and chloroform. Still it is better and more distinctly observed with fresh pulmonary tissue. The best medium of culture is sugared water, as it furnishes the food of the vegetable parasite. The filaments of the mycelium are flattened, ramified, not separated, and have some irregularly disseminated vacuoles. The largest are from 0.0067 mm. to 0.0084 mm., the medium sized, 0.0049 mm. and the smallest or finest, 0.0036 mm.

In an examination made immediately, the fruits easily escape the observation, because from their form, dimensions and general aspect they much resemble cells of the animal, which contribute to complete the vesicles. But if one places fresh tissue under a glass kept at a temperature of animal heat, there may be perceived, after two or three days, a well-marked odor of moisture.

From that time is seen a large quantity of small spores, with double lining and granular contents, which by their formation in the culture cannot be considered but as animal cells in the way of regression. The same element may then be easily detected in fresh and uncultivated tissue. Whether this fungus is the primitive cause of the disease, is a fact which further experiment and observation must decide.

REPORT OF CASE.

A CASE OF PERSISTENT HYMEN IN THE COW.

BY L. P. CHASE, Ashland, Ohio.

On the 15th of February, I was called to see a cow, three years old, a primipar, that had been in labor ten or twelve hours, and was not making any progress towards delivery. Upon making an examination I found a duplicature of mucous membrane of the vagina stretched across the passage, about four inches from the vulva, forming a complete septum, except a small opening in the centre, about half an inch in diameter. This membrane was sufficiently strong to resist the expulsive efforts of the animal.

By manipulation, I was able to introduce my fingers, one after another, through the orifice, and was able to lacerate the membrane sufficiently without the use of the knife.

After rupturing the foetal membranes and allowing the liquor amni to escape, I made an examination of the foetus, and found it in proper position, and by applying gentle traction to the legs during the expulsive efforts of the animal, delivery was soon effected.

The calf made a few convulsive struggles after being expelled; the heart beat regularly at first, but respiration was suspended, and all efforts to produce it failed. The cow is doing well. Persistent hymen, as far as I can learn, is exceedingly rare, at least where it offers any resistance to parturition.

EXTRACTS FROM FOREIGN JOURNALS.

UPON AN EPILEPTIFORM AND CONTAGIOUS AFFECTION IN THE
DOG, DUE TO AN ACARUS OF THE AUDITIVE CANAL.

BY M. P. MEGNIN.

A wealthy gentleman reported to me, that he had several hunting dogs, which all, though of different origin and various breeds, were affected with an epileptiform disease which, after several months of suffering, would end in death. This had continued for several years, and all the dogs that he buys, to take the place of the dead ones, after three or four months become affected with the same disease, and succumb to it. Though the kennel has been well disinfected several times and whitewashed, the epizootic persists continuously without change.

Desirous to study the disease and watch it *de visu*, I was given a beautiful terrier, which on account of its sufferings, the owner was about to have destroyed. During eight days, I watched him at all times, and witnessed the repeated epileptic attacks. I especially noticed the frantic shaking of the ears, which was almost continuous. By an examination of the interior of these organs, I found that the external auditive canal was lined with a thick layer of cerumen, of soot color, maculated with almost imperceptible little white points, which, under the microscope, proved to be acarus, of the species I described under the name of *choriopsis eadantus*. I had already seen this parasite in other dogs, in cats and in ferrets, in the auditive canal of which animals they exclusively live, and I knew that in the cat this parasite gives rise by its titillation, to true access of frenzy; but I did not know that in dogs these paroxysms could go so far as to resemble epilepsy. However, the presence of this acarus explained the contagious character presented in the affection as exhibited by all those dogs, a character which is very extraordinary in an epileptiform disease. And the proof that this parasite was surely the

cause of all the trouble is that injections of a solution of sulphuret of potash (potassic sulphuratum) one in twenty, repeated during the day, were sufficient to put a stop to the epileptiform symptoms of the dog I had under observation, and I have no doubt will rapidly put an end to the epizooty in question.—*Gazette Medicale*.

UPON A SUPPOSED MEANS OF PRODUCING IMMUNITY AGAINST
ANTHRAX.

By M. COLIN.

The results of the experiments he has made prove :

1st. That the virulency of the carbuncular blood dies out, or nearly so, between 55° and 57° Centigrade, for causes to be afterward determined.

2d. That in the cases where the blood warmed to that degree does not lose its properties, it produces anthrax with all its characteristics.

3d. That the warmed blood, whose virulency is lost, has no nocivious action and acts like that of a healthy animal.

4th. That this same blood, whose virulency has been destroyed by heat, does not insure immunity, for animals inoculated with it will afterwards take anthrax as easily as others, and die from it in the ordinary length of time, presenting all the characteristic lesions of the disease.—*Bulletin of the Academy of Medicine*.

A CASE OF ACUTE PHTHISIS, PRODUCED BY DIRECT CONTAGION,
IN A DOG.

By DR. H. CULLIMORE.

About six years ago the author had a patient suffering with advanced pulmonary plithisis. This man, who coughed much, had profuse expectoration. A dog had the habit of licking and swallowing this sputa. Several days after the death of the man, the

dog began to lose his appetite, and soon refused all food. Emaciation made rapid progress before long, and he had a severe cough. Auscultation revealed, in the greater part of the chest, the existence of moist, mingled with sonorous and sibilant rale. The general condition grew worse for eight or ten days, when the animal was taken with convulsive fits, lasting about five minutes, and occurring several times a day. The poor animal was then destroyed with prussic acid.

At post-mortem there were found recent adhesions of the two pleura; the lungs were filled with nuclei of softening, presenting the different periods of caseous degeneration; the bronchia were filled with purulent matter. The bronchial ganglions were not examined.

The meninges seemed thickened, and when divided allowed the escape of some serosity. They were free from tuberculous deposits.—*British Medical Journal*.

NEW EXPERIMENTS UPON THE CULTURE OF BACTERIAS OF ANTHRAX IN EARTH.

BY M. COLIN.

The resumé of the work is as follows:

1st. Sixty-one animals have with impunity, and at four different times, during the summer or fall of the year, eaten the whole of the grass which had grown on the ground where sixty carbuncular cadavers had been buried, from the end of March to the end of July.

2d. Eleven animals had also, with no less impunity, partaken of the oats and hay moistened with the water which had been used in washing the earth taken from and mixed with large amounts of detritus of those cadavers.

3d. Seven animals penned during 4, 5, 6, 12 and 15 days upon cadavers of anthrax, buried to a slight depth, have taken their food always covered with the dirt and earth which may be supposed to be loaded with the virulent element. Besides, four other

animals have eaten for three weeks a kind of mixture of earth taken from the spot where twenty-one cadavers had been buried, from the end of March to the beginning of July.

4th. Ten animals have received into extensive recent wounds, and in the sub-cutaneous cellular tissue the waters of the washing of the earth taken upon several cadavers, and mixed with the detritus of these cadavers.

5th. Lastly, six animals have been submitted to inoculation with the products of the culture of the hypothetical germs of the earth in the blood, the serosity and the urine. And none of the ninety-eight animals used in these five series of experiments contracted anthrax, even in a local form, such as tumor, œdema or pustule.

The only one of the number which had been sick, and which died after a single cutaneous injection, presented no symptoms or lesions of anthrax. Its blood was free from bacterides and virulent properties.—*Gazette Medicale*.

A CASE OF PARTIAL LUXATION OF BOTH PATELLÆ IN A TWO-YEARS OLD CART FILLY.

BY M. G. H. GOLDING.

A two-years old grey cart filly had an enlargement on the point of the near shoulder, caused by a badly fitting collar. A seton was introduced through it, and directions given for after treatment.

While standing behind the filly and taking a casual glance at her, a peculiar snapping sound was heard, proceeding from the stifle joint. Removed from the stable, it was observed that she had great difficulty in turning, and on close examination it was found that she could not rest on either hind leg, except for a few seconds. An unnatural prominence of the outside of each stifle joint was also noticed, and when the filly moved or changed her position the patellæ moved on and off the condyles of either joint, causing a peculiar snapping noise. On inquiring into the

history of the case, it was stated that she had been in that condition from the time she was taken up, some four weeks previous. A blister was applied over the whole surface of each joint, and if unsuccessful the actual cautery will be applied.—*The Veterinarian*.

GLANDERS—THE DIFFERENT DIAGNOSIS OF EQUINE PULMONARY NODULES.

BY DR. JOHANN CSOKOR, (Veterinary Institution, Vienna.)

Pulmonary nodules are almost universally acknowledged to be associated with glanders. But from pathological history and careful microscopical examination of these, I am inclined to believe that they are, in many cases at least, perfectly innocuous, and independent of the glander poison. Nodules of various sizes are found in the lungs of horses affected with nasal glanders, and not unfrequently in those which present no signs of that disease. They are characterized by having bright-red or black-red zones of various extent surrounding them, and they usually have a whitish-yellow or grey mass embedded in the centre, which can be easily separated with a knife. These bodies are generally spoken of as "pulmonary" nodules, but they are rarely accurately described in detail; and many veterinary surgeons speak of these as "glander" nodules. In reality, they are nothing more nor less than *emboli of the pulmonary vessels*.

There is another kind of nodule frequently found in the lungs, which has also been similarly described. These are white, firm, hard formations, and present no signs of surrounding irritation, although their origin is due to the same cause.

If we now compare a section of a true glander nodule, taken from the nasal mucous membrane, with one of those surrounded by a red zone in the lung, we shall find that they do not follow the same process of formation and degeneration. The glander nodule is characterized by its centre quickly undergoing degenerative changes. The cellular elements, which are undistinguish-

able from lymphoid elements, undergoes necrobiosis, and a structureless mass is the result. In the glander ulcer, this detritus escapes, and the process may be observed in progress at the periphery of the ulcer.

The other nodular formations, which are surrounded by the inflammatory zone, are less firm, possess a perfectly round form, and the fibrous tissue at the periphery resembles, and in reality is the middle layer of the vessel. This vessel surrounds a fibro cellular mass, and much resembles a small clot. If we examine several of these nodules, in various stages of their development, we shall find an accumulation of blood cells at the periphery, (the red zone) and frequently extravasations into the surrounding tissue (dark red or black zone), with inflammation, *i. e.*, an escape of the white blood-corpuscles out of the capillaries, which may be seen surrounding the nodule, in the walls of the vessel and in the fibrous tissue outside the vessel, forming a fibro-cellular mass. New blood-vessels are formed, and pass into this newly formed mass, and into the wall of the old blood-vessel. The fibro-cellular mass, as well as the clot-like portions in the centre, now separate with small irregular portions between the spaces of which the new blood-vessels penetrate; in fact we may say we have an organized thrombus. At a later stage the whole becomes vascular and nutritious, and the leucocytes which normally escape from the vessels into the surrounding tissue alter their shape and send out processes and form a new connective tissue. Consequently the red zone which formerly surrounded the nodule becomes lighter in color, and at a still later period, instead of a nodule surrounded by a red zone, we find a firm, tense, greyish-white nodule, composed of fibrous tissue. In this case it will be seen the process is *progressive*, whereas, in the case of the *glanders nodule* it is *retrogressive*. It, therefore, appears to us that we are not justified in considering all nodules that may be surrounded by a zone, or that are white and firm, to be of a malignant element, and produced by the glander poison. Although other authors have drawn attention to these nodules in a similar manner, still I would particularly desire to draw attention to the process of vascularization and organization of the thrombus, and it is on this account

that I send the present communication, in order that other observers may further investigate the subject.— *Veterinary Journal*.

OSTEOMALACIA AND RACHITIS.

BY. S. ROLOFF.

By long privation of calcareous principles, Roloff has succeeded in producing in young dogs, not only an arrest in the general nutrition, and in the increase of weight, but also the clinical phenomena and anatomical lesions of rachitis. Three dogs, five-and-a-half weeks old, of the same litter, and in robust condition, received each day 200 grammes of horse-meat, 60 of starch, 30 of sugar and 10 of oil. The first had each day in addition 10 grammes of phosphate of soda, and a like amount of phosphate of magnesia, in 200 grams of water; the second, in addition to this saline solution, had 10 grammes of phosphate of lime; the third had neither lime nor phosphates.

The second increased much more rapidly in weight than the others. The autopsy exhibited in the first and the third, the lesions of rachitis. A counter-experience is founded by the treatment of a rachitic young dog, which recovered in three months by the use of phosphate of lime.

Experiments made on goats and sheep could not be followed to the end, because those animals refused the food given, and starved themselves rather than take it. The author reports only two cases of lesions of osteo-malaria, in a goat and a ewe, which had lost much in calcareous principles by excessive lactation.

TREATMENT OF FOOT AND MOUTH DISEASE BY SALICYLIC ACID.

Salicylic acid has recently been employed by the Duke of Brunswick in the treatment of this disease, with surprising results, a cure being obtained within a few days. A solution was made by adding about three table-spoonsful of the acid to one

gallon of lukewarm water, the acid being previously dissolved in a little hot water. The mouth and feet of the animal were well washed, three times a day, with this solution, and the tops of the hoofs well powdered with dry acid, after each washing. Two table-spoonsful of the acid, dissolved in warm water, also placed in the drinking water of the animals, much increased the effect. During the treatment, strict cleanliness is preserved in the stables or sheds; and to prevent further infection, the dung is saturated with the salicylic solution. Most satisfactory results have also been obtained by this treatment in Alsace.—*Veterinary Journal*.

NEW MODE OF CONTROLLING THE HEAD OF THE HORSE WHEN THROWN DOWN.

BY. MM. BERNADOT AND BUTEL.

As the struggles of the horse when thrown down are often followed by serious injuries, and especially by fracture of the vertebral column, when the head and neck are powerfully flexed, the following apparatus has been invented. It is said to work well.

It consists of a wide surcingle, with two straps united into one, V shaped, alongside the upper border of the neck, and provided with a buckle; then, a halter having one buckle in the middle of the nose piece, and a strap attached to it which passes through a ring placed on the poll strap of the halter. When the animal is down this strap is secured to the single buckle of the bands of the surcingle, and the head can be brought and kept in its greatest position of extension. The apparatus seems to work something like the Kimble-Jackson check-rein.—*Archives Veterinaire*.

TRIPLE GESTATION IN A MARE.

A mare was suffering with after-pains and placental retention. The mare was nine and a half months gone with foal, and had thrown twins a few hours before assistance was called. On the

arrival of the veterinarian, he was told that she was very ill, and the animal was found with a *third foal* behind her. The little creature was alive, as was also the second one at birth, the first foetus being dead. As the mare was in great pain, and straining severely, the after-birth was with some difficulty removed at once, profuse hemorrhage following. $4\frac{1}{2}$ grains of solution of muriate of morphia was injected, sub-cutaneously, and the straining and the hemorrhage ceased almost at once. The mare, which was twenty-one years old, made an excellent recovery. She had twins two years before, both premature.—*Veterinary Journal*.

LIQUID FOR THE PRESERVATION OF ANIMAL AND VEGETABLE STRUCTURES.

Mr. Wickersheimer, of the Zootomical Museum of Berlin, uses the following preservative and antiseptic liquid. One hundred grammes of alum, 25 of common salt, 12 of salpeter, 60 of potash, and 10 of arsenious acid, are dissolved in 3 liters of boiling water. Ten parts of this, 4 of glycerine, and 1 of methylic alcohol are added before use.

The substances to be preserved are either injected with the liquid, moistened with it by means of a brush, or immersed in it.

The great advantage of the mixture is that it preserves the softness, flexibility and color of fresh vegetable or animal tissues.

SOCIETY MEETINGS.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The eighteenth semi-annual meeting of the United State Veterinary Medical Association was held at Young's Hotel, Boston, March 15th, 1881, at 12.20 P. M. Twenty-four members were present.

The committee appointed at the last meeting to secure the concurrence of the different veterinary colleges of America in

lengthening the term of studies, etc., of all the colleges, reported progress. The Comitia Minora reported favorably to the meeting the names of the following gentlemen, as members of this Association: Drs. E. Hanshew, D. Cochran and Thos. Blackwood. By a unanimous vote they were admitted as members. Drs. J. Dougherty, R. H. Harrison, M. Bunker, J. Ed. McNicol, D. J. Dixon, W. W. Burt and Jos. Bushman were proposed for admission as members at the next meeting of the Association.

Dr. C. P. Lyman then read a report of the microscopic examination (by Dr. Whitney) of the lungs, taken from American cattle that were landed in Liverpool, and which were said to be affected with contagious pleuro-pneumonia. He also presented drawings of portions of the lungs. The subject was discussed by Drs. Robertson, Liautard, McLean, Stickney and others.

The secretary read a communication from Dr. A. A. Holcombe, relating to army veterinary surgeons, their rights, duties, etc., etc., asking the support of the Association in making the veterinarian's position in the army what it should be. Dr. Liautard moved that a committee be appointed to whom the matter be referred, and that said committee take such action as may be deemed advisable. Drs. L. McLean, Bryden and Michener were named by the president to constitute this committee.

Dr. Peabody read a paper, describing some cases of phthisis pulmonalis verminalis, as seen by him, and showed specimens of the parasites under the microscope. A photograph of portions of the bronchial tubes containing the fully developed parasites was also presented. An interesting discussion followed as to the manner by which the ova are taken into the system, and how they are developed in the trachea and bronchii.

Dr. Robert Wood gave a short account of a case of sarcocele, accompanying his report with the specimens. The testicle, which weighs five and one-half pounds, was presented to the museum of the American Veterinary College.

In view of the increasing demands made upon the time of the editor of the AMERICAN VETERINARY REVIEW, the society decided to present the journal to Prof. A. Liautard, without any encumbrance, as a slight recognition of the work he has done for

the Association and profession at large. The gift was accepted, and thanks returned to the society in a feeling manner.

A spirited and general discussion then took place on the subject of trichinosis, hog-cholera, foot and mouth disease, and pleuro-pneumonia, especially in reference to the extent of their existence in the United States, and of the restrictions they impose upon our foreign trade.

During the course of the discussion it was shown how *imperative* it is to thoroughly disinfect all vehicles on which infected animals have been carried. A hearty vote of thanks was extended to the gentlemen for their papers, after which the Association adjourned to meet in New York next September.

C. B. MICHENER,

Secretary.

CONTAGIOUS DISEASES IN EUROPE.

PLEURO-PNEUMONIA IN FRANCE.—On account of the appearance of this disease in several Spanish localities, the importation of cattle is prohibited, and is closed in the different towns lying on the French frontiers.

TEXAS FEVER IN ENGLAND.—The possibility that some of our western cattle landing in England may introduce the Texas fever into that country, seems to have aroused the fears of the officers of the Privy Council. Prof. Brown has made a report, which is published in a new Blue Book, recently issued, where the peculiar difference between that disease and the home splenic fever are described, and the dangers of the importation of the disease on English soil fully explained.

TRICHINOSIS IN FRANCE.—On account of the discovery of trichina in some samples of salt pork imported from the United States, found in the markets of Lyons and Paris, the importation of American pork has been prohibited in the different

French ports, with some allowance in peculiar cases. The meat is to be carefully examined by veterinarians, before it is allowed to be placed on the market.

TRICHINA IN SPAIN.

American pork is prohibited in Spain, as it has already been in several of the European countries.

It is reported that so far the trade in this branch of exportation has been reduced from 30 to 40 per cent. If one thinks that for one country alone—France, 19,000,000 of dollars—a figure which was yearly increasing, are thus lost us, what must be the enormous loss that our exportation will endure by having all these countries, Spain, Italy, England, Russia, Austria, Portugal and Greece, closed to our importation.

CORRESPONDENCE.

DEPARTMENT OF AGRICULTURE, }
WASHINGTON, D. C., Feb. 9, 1881. }

Prof. A. Liautard, American Veterinary College, New York:

DEAR SIR:—I am happy to be able to inform you that the outbreak amongst cattle at Bedford, Iowa, recently reported through the newspapers to be one of contagious pleuro-pneumonia, is not that disease.

This I have from the report, by telegraph, of Doctors McLean, of Brooklyn, and Detmers, of Chicago, who were recently sent to the localities for the purpose of examining the herd in question. The report of this examination has not yet reached me.

Very truly yours,

CHARLES P. LYMAN,
V. S. to U. S. Dept. of Agriculture.

DEPARTMENT OF AGRICULTURE, }
WASHINGTON, D. C., February 18, 1881. }

SIR:—I have just received the oral report of Dr. McLean, and in advance of his written report, which will be published as soon as possible, hasten to inform you that the pulmonary trouble from which animals in Iowa, Missouri and Illinois have died, and which in some way or other unknown to this Department was reported as contagious pleuro-pneumonia, proves to be without doubt that form of disease caused by the presence in the lungs of these animals of the *strongylus micrurus*. That, also, wherever a large percentage of mortality obtained, it was found to have been caused by *black quarter*, uncomplicated by any specific lung trouble whatever.

Yours very truly,

PROF. A. LIAUTARD.

CHARLES P. LYMAN,
V. S. to U. S. Dept. of Agriculture.

ASSEMBLY, No. 279.

STATE OF NEW JERSEY.

INTRODUCED MARCH 1, 1881, BY MR. BEEKMAN.

AN ACT to prevent any person from falsely assuming or practicing any of the degrees of veterinary medicine or surgery.

1. BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey*, That it shall not be lawful for any person or persons practicing veterinary medicine or surgery in this State, in any of their branches, to assume or affix to their names, business cards, bills or advertisements, any of the degrees or titles properly belonging to and granted only by legally chartered veterinary colleges and universities, or medical schools having power

by law to grant diplomas or veterinary medical certificates, unless said person or persons shall be regular graduates from such institution, and shall hold and possess a diploma or medical certificate therefrom.

2. *And be it enacted*, That any person or persons falsely or fraudulently assuming or advertising themselves as veterinary surgeons, or doctors of veterinary surgery or medicine, or claiming the possession of any of the degrees or titles conferred upon veterinary surgeons from legally chartered veterinary colleges, universities or schools, shall be deemed guilty of a misdemeanor, and upon conviction, shall be punished by a fine of twenty-five dollars, said fine to be sued for and recovered in an action of debt by any person who will sue for the same; and in default of payment of said fine, the offender shall be imprisoned in the county jail for a period of not less than two nor more than six months; *provided always*, that such persons be liberated at any time by paying the amount of said fine and costs; and should such person or persons be convicted of a second offence, they shall be imprisoned for a period of not less than one year.

3. *And be it enacted*, That every legally qualified veterinary surgeon shall, before entering upon the practice of their profession, deposit a copy of their diploma or medical certificate with the county clerk in the county in which they reside or sojourn, and shall pay said clerk ten cents for filing the same in his office, said copy to be a matter of record and open to public inspection.

4. *And be it enacted*, That nothing in this act shall be so construed as to prevent any person or persons not in possession of a regular diploma or medical certificate from *practicing* any of the branches of veterinary medicine or surgery in any county of this state in conformity with the first section of this act.

5. *And be it enacted*, That this act shall take effect immediately.

OBITUARY.

ERNEST TRAVER.

The telegraph brings us the sad news of the death of this young veterinarian, which took place from an overdose of strychnine, taken by him on the evening of the 23d of March.

A graduate of veterinary medicine at the old New York College of Veterinary Surgeons, in 1875, at the head of his class, Ernest Traver, a quiet, unassuming young man, was a hard student, who, though he left his alma mater with honors, was not forgetful of the treasures which medicine afforded him in his studies; and his might be said to have been a constant and continued student life. After he graduated he went to Rhinebeck, and succeeded in a short time in obtaining a good country practice there. But this was not sufficient for his investigating mind; and, as he was preparing to go to a larger city where he thought he could find better opportunities, he became connected with the breeding establishment of Mr. Pierre Lorillard, where, for several years, Doctor Traver practiced his profession on the animals kept at this world-wide haras. But a few months ago he left this place, and, after passing a short time in New York, where he busied himself in the purchase of books and other means for study, and in taking the steps for the admission of his brother to the American Veterinary College, he returned to Rhinebeck, where his useful life has been so suddenly cut short. Suffering from nervous debility, he had been accustomed to take small doses of strychnine. He had been in the village to attend the funeral of a friend, and, on returning home in the evening, as he stated to his poor father, "as it was dark in the room," took an overdose of this dangerous medicine.

Proud of him, his alma mater regrets him; almost unknown to her, the profession has lost with him one of her best members.

NEWS AND ITEMS.

DESERVED HONOR.—M. Pasteur has received the great gold medal of the Society of Agricultors of France, for his researches upon ferments and contagions in their agricultural and medical applications.

NO PLEURO-PNEUMONIA IN CONNECTICUT.—In the report on diseases of domestic animals, it is stated that it is the opinion of the commissioners that pleuro-pneumonia has entirely vanished from that State, and that the only danger is from fresh importation of the disease.

NEW INSURANCE COMPANY.—An insurance company has been formed in Prussia to insure against loss of hogs by trichina.

FRENCH DUTIES ON LIVE STOCK.—France is imposing increased heavy duties on imported live stock for the protection of her farmers.

RARITY OF TRICHINOSIS IN GREAT BRITAIN.—America sends annually to England some 700,000,000 pounds weight of hog products, and yet not a single case of death from trichinosis has ever been proved to have occurred in Great Britain.

FALL IN BACON EXPORTATION.—Owing to the insane pork scare in Europe, the exports of bacon from New York fell off last week to 7,400,000 pounds. The average shipments for many weeks heretofore were 12,000,000 pounds.

MORE PERCHERON HORSES.—Twenty pure bred Percheron horses have lately arrived in this city, imported by Mr. W. F. Walters, of Baltimore, Md. They are said to be a superior lot and as fine specimens of the breed as can be found in their native country.

NOTICE.

If those members of the U. S. V. M. A., who have not received certificates of membership, will acquaint the secretary of the fact, certificates will be sent them by express, to their addresses, at as early a date as possible.

C. B. MICHENER, *Sec'y*,
141 W. 54th St.,
New York.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—*Revue für Thierheilkunde und Thierzucht*, *Gazette Medicale*, *Veterinary Journal*, *Veterinarian*, *Recueil de Medecine Veterinaire*, *Archives Veterinaire*, *Annales d'Brussels*, *Revue Dosimetrique*, *Clinica Veterinaria*, *Revue d'Hygiene*, *Journal de Zoötechnie*.

HOME.—*American Agriculturist*, *Prairie Farmer*, *Medical Record*, *Turf, Field and Farm*, *Medical and Surgical Report*, *Scientific American*, *Ohio Farmer*, *Practical Farmer*, *Medical Herald* (Louisville).

COMMUNICATIONS.—Robert Wood, C. H. Peabody, C. B. Michener, F. S. Billings, L. P. Chase.

PAPERS.—*Providence Journal*, (Providence), *Boston Herald*.

AMERICAN VETERINARY REVIEW,

MAY, 1881.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 5.)

DISEASES AND DEFECTUOSITIES OF THE FOOT IN SOLIPEDS.

Of all the domestic quadrupeds, the horse is the most exposed to diseases of the foot, which are more or less frequent in him according to the work he is subjected to, the places he lives in, and the nature of the ground upon which he travels. As rare as are those accidents in farm horses, as common are they amongst horses in cities, of heavy draught, and also army horses; in all, in fact which travel continually on hard, paved, and stony roads, and especially in large cities, where all those injuries can but be the result of their constant work on stone pavements, always so rough and slippery. If to these conditions are added the very numerous accidents resulting from bad shoeing, so badly carried on, one will be less surprised to see the foot becoming deformed and altered in different ways, deteriorated, and preserving with difficulty, and for a short time its state of integrity, and becoming the seat of numerous affections.

We shall distinguish the *diseases proper* and the *vices of conformation* of the foot. The former are generally sufficiently serious to be described in special part. Amongst them some are superficial, as the *false quarters*, *uncomplicated cracks*, or solution

of continuity, *thrushes*, *canker*; others deeper interest, specially the keratogenous apparatus, such as *laminitis*, with its complications and sequelæ, *keraphylocele*, *seedy toe*, and *separation* of the wall, which may extend as far as entire sloughing of the hoof; accidents then due to the suppuration accompanying several diseases of the foot. Some maladies are specially the effects of wounds, of contusions such as *overreaching*, *quittor*, *bruised sole*, *bruised heels*, *corns*, *punctured wounds*; others are results of shoeing, *pricked*, *tight shoe*, *burned sole*; others are deep altogether, such as *boinons*, *navicular disease*, and, lastly, *fracture of the os pedis*, or of the navicular bone.

VICES OF CONFORMATION.

Amongst the vices of conformation some are serious, as *contraction of the heels*, *flat foot*, *pumiced foot*, *club foot*, *crooked foot*, *rammy foot*, and, lastly the *foot with bad horn*.

(a) *Flat foot* (Germ. *Platfuss*).—By this is understood the foot in which the sole, instead of having the natural concavity, is, on the contrary, flat, and by its whole surface about on a level with the border of the wall and the base of the frog; most ordinarily this is accompanied with low heels, more or less contraction, and a well-marked oblique direction of the wall.

Flat foot is generally observed only on front feet, and is very common in lymphatic animals or of low breed, raised in low and damp soils. It may be congenital; large feet, badly shod or used up by an exaggerated work, are predisposed to it; it is claimed that the weakening of the sole by too repeated and deep paring of the sole will ultimately bring it on; it is said that abuse of poultices may produce it; it follows excess of the hollowing of the shoe by the upper surface, which, pushing the wall outwards, obliges the sole to drop lower than its normal level.

The horse with flat foot rests on parts of the sole at once; there is no elasticity of the arch of the sole, and percussions take place on it entirely. The actions of the animal are heavy, especially as it is commonly seen when the feet are large. When the foot is somewhat tender, the animal lames easily, especially if the shoeing is bad, or rests on the sole or if the animal is obliged to trot on

rough or stony roads, which render the percussion very painful. There arises some irritation, which keeps on increasing, and produces several accidents, such as bruised sole, corns, puniced feet.

The horse which has flat feet often has weak walls, and as the nails of the shoe become loose, this is often cast.

By shoeing, one may remedy this bad condition of the foot. For this, the foot must be pared flatways, the sole spared, the wall relieved only of what is broken off; the frog must be left alone, the heels also: a shoe somewhat wide in the web, protecting, therefore, the sole more than an ordinary shoe does. It will be adjusted so as to rest on the border of the wall only, and not on the sole; still, care will be taken not to hollow it too much or to excess. Sometimes a thick shoe only is necessary, without increased width. Soles of gutta percha or felt are also used, as we will see when speaking of the puniced foot.

(b) *Puniced foot* (Germ. Vollfuss)—Is thus called the foot whose sole projects beyond the level of the wall, and presents a convex surface, extending beyond the plantar border, upon which the horse rests. It is the exaggeration of the flat foot. In the puniced foot the wall has a great obliquity, sometimes even assuming a horizontal direction.

The horse is never born with such feet; this is a malformation, accidental, or resulting from various causes. One of the most common is lack of care of the foot, of necessary caution, for instance, in paring, or shoeing in such a way as to bring the rest of the foot on the circumference of the under part in such a way that the sole does not touch the ground, and ceases to be pressed by it. Too much concavity of the shoe may bring on this result, by resting only on a too narrow part of the inferior border of the foot; and by opposition, not enough concavity will compress the tissues, irritate them, and produce the same alteration. Feet become puniced by laminitis, but this is complicated with seedy toe. Never, then, is the foot puniced in its whole extent; its deformity stops always at the limit of the inferior border of the bars; beyond them, behind, on each side are seen the excavations of the lateral lacunæ of the frog, so much deeper that the heels are higher. The hoof does not preserve its circular shape. It atro-

phies on the side, and presents at the toe an excess of thickness in the wall ; the heels assume a greater development.

This deformity is very serious, and disables the horse easily ; rest takes place only upon the sole and frog ; after, laminitis upon the sole and heels ; it is always very painful. Work on hard ground and pavement is next to impossible. After laminitis, one sees, during walking, that the foot rests upon the heels, and then by a motion from backwards to forwards. An animal with pumiced feet has a tendency to forge and interfere ; the slightest bruise of the sole gives rise to serious complications. One often observes wounds, suppurations, &c.

The indications are analogous to those of the flat foot ; the sole ought to be spared as well as the frog, the walls only ought to be slightly trimmed ; the shoe must be made so as to carry the rest upon the border of the wall and protect the sole. When the foot is not pumiced to excess, one must use a broad web shoe, sufficiently concave to allow the sole to rest in it ; but it must not be too excessive, as then the base of the rest would not be very firm. A sheet of gutta percha, or felt, with tar and oakum, may be placed between the shoe and the foot.

(c) *Club foot* (Germ. Bockhuf).—This is the foot in which the wall is straightened more or less perpendicularly, or even obliquely backward, so that the superior border of the wall is more forward than the inferior. The superior levers participate always in this vicious direction, which constantly brings back the rest of the foot towards the anterior part of the wall, and, according to its degrees, makes the animal walk more or less on the toe, even sometimes obliging him to rest on the anterior face of the hoof ; the heels are raised from the ground, and the fetlock, instead of being open forward, seems to be turned backward. This deformity, which exists especially in the hind legs, is very common, and is even natural in mules, and supposes, with its presence, high heels, which throw the rest on the toe, which is always very thick. It may also exist with low heels, especially when due to overwork or other accidental cause. Horses which, like mules, are club-footed only by a peculiar condition of parts, walk with firmness, and even pull better and work better on hilly countries. If they are unfit

for the saddle, it is because their reactions are hard, and that they tire the rider. It is not so with those which are club-footed from hard work; they continually stumble, are subject to knuckling, to interfering, or even to falling; and for these reasons do they always require a mode of shoeing which would give them the missing solidity, and render their walk more steady. This circumstance indicates the necessity of sparing the toe, and throwing the weight back on the heels, which, however, must not be pared off too much. The best shoe for such feet must be short, thin at the heels, with a thick toe, slightly raised upwards, and prolonged beyond the level of the border of the wall; small heels to the shoe are often advantageous, as giving an opportunity for rest and relief. The shoe with truncated branches of Lafosse (slipper), which is a short shoe, not extending beyond the quarters, and leaving the heels free, is sometimes used. This shoe is very thick at the toe, and very thin at the heels. It is unnecessary to say that club foot is often cured by tenotomy, or by treatment of the tendinous retraction.

(d) *Crooked Foot*.—We call by this name the foot whose sides are not of the same height; it may be crooked outwards or inwards.

This deformity may result from a vice of direction of the regions above; ordinarily, however, only from a deviation of the phalangeal one. Sometimes it is due to bad shoeing, to bad paring of the feet; sometimes it follows unequal wearing of the foot, it being without shoe. Colts which have never been shod, and are walking for a long time on hard and rough ground, often present this condition.

The horse with crooked feet inwards, specially if the deviation is much marked at the toe, is exposed to cut himself with the internal heel of the shoe—to bruise himself; the horse with crooked feet outwards cuts himself with the inner toe. Besides these, lameness, from lacerations of articular ligaments, may often follow.

This is relieved, specially in young animals, by lowering the side of the wall which is the highest, and sparing the other; the proper shoe for this condition must be thicker in the branch cor-

responding to the lower side of the foot. The shoe ought to be changed quite often, in proportion to the existing difference in height. If the foot is very crooked, it is difficult to straighten it by having a greater thickness of the shoe; it would make this too heavy. Sometimes it is better to use nails with large-sized head on the lower side of the hoof; and in these cases one might put on *corks* at the heels, external or internal, as required.

(e) *Rammy Foot*.—This is a defectuosity of the foot, always accidental, in which the surface of the wall offers more or less numerous circles, above each other and running from one quarter or heel to that of the other side. These roughnesses, arranged in rows, rise always from the coronary band, and form as many elevations gradually descending and disappearing towards the inferior border of the wall. They are so much more serious that they are deep, and sometimes are accompanied with lameness, especially when in great number, close to each other, and when the foot is narrow and long. These circles are sometimes sequelæ of laminitis, and accompany seedy toe; the rings then are in the middle of the toe, which is more or less roughened, like an oyster shell, and they disappear only when the primitive alteration is removed. When they are small, not numerous, and grow down without being replaced by new ones, this favorable disposition of the wall must be stimulated by all the means which may stimulate and keep up the suppleness, by light blisters over the coronet. A light shoeing, often changed, is the best in those cases. Circles which reappear continually are due to an intimate and continued alteration, and are in company with other defectuosities, such as contraction, pumiced foot, etc.

(f) *Foot with bad hoof*.—A hoof may be too soft or too dry. When *too soft*, too greasy, it contains too much dampness and is lacking resistance. Horses which have this weak hoof, as said Lafosse, have the foot tender and unfit for long walks on hard and stony ground; they are, besides, much exposed to lose their shoes, because the hoof breaks up at the nail-holes. This fault is quite common in large feet, frequently seen in Northern lymphatic animals, especially in those which come from marshy districts; if, then, those horses are submitted to stabulation, their

hoof becomes dry to excess, which gives rise to narrow and contracted feet. The lower part of the foot must be pared with care, as it has but little thickness; the application of the warm shoe while fitting must be as short as possible. An ordinary thin and light shoe must be used; the nails will be as light and thin as possible, and hammered in carefully.

Too dry hoof is liable to break, because it has lost its physiological suppleness; this brittleness is often met in animals whose feet have been much in water and afterwards are placed on dry ground; it seems as if the water had dissolved the adhesion of the horny cells. The same condition follows the excessive use of poultices and also of strong grease in shape of ointments. It is wise to grease, but previously the old crust must be removed. Hoof ointments of wax, turpentine, or tar are better. The foot is called *dérobé* (broken) when by the use of a thick nail it is more or less broken at the edges of the wall. These feet lose the shoe easily; animals then go on bare feet, and then it becomes very difficult to put other shoes on. It is necessary in these cases to punch nail-holes on the shoe corresponding with parts where the hoof is sound. In paring, all the pieces of broken horn are removed, or at least as much as can safely be done. Nails are secured as high as possible; shoes must be changed as easily as possible, and the hoof is to be kept supple by unctuous applications. When the breaks of the horn are too large, softened gutta-percha, or a mixture of gutta-percha, three parts with one of gum ammoniac, melted together, can be used to fill the anfractuosités, all grease having been first removed by a wash with ether; those putties harden, and the shoe can be tacked on solidly. Nails can even be punched through the gutta-percha.

(*To be continued.*)

WHILE we are free to admit the infection, to some extent, of American pork with trichinæ, the report of F. H. Mason, United States Consul at Basle, Switzerland, seems to prove that certain outbreaks of trichinosis, said to have arisen from eating American pork, in reality were due to eating the raw or imperfectly cooked flesh of German and French swine.

EMBOLISM OF POSTERIOR AORTA AND TERMINAL BRANCHES.

BY C. H. PEABODY, D.V.S.

(Read before the Rhode Island Medical Association.)

On being requested to visit an animal belonging to Mr. J. S. Tuestloit, of this city, I found a gray mare, 12 or 13 years of age, about $15\frac{1}{2}$ hands high, and in very good condition, but with the gluteal muscles and those of the thigh and tibial regions of the off side somewhat atrophied; pulse, 42; temperature, 100; respiration, 16. The mare at first had a bad cold and did not make a good recovery. She was not used for about three weeks, and then, when driven three or four miles, showed lameness in the off hind leg, and was removed from the carriage as quickly as possible, for fear of falling. She held her off hind leg up so high that she threw herself down on the other side. After resting one hour she appeared all right, and the next day returned home. Upon using her again the same symptoms were presented. At my request the animal was hitched to a buggy and driven about half a mile again, when she presented the following symptoms: She showed lameness, and before we got back it was almost impossible for her to move the off hind leg, as there was hardly flexion or extension, but an abduction, and a swinging motion of the whole limb. Respiration, labored; pulse, 72; temperature, 103. Arriving at the stable, she would constantly set the foot down and then take it up. About fifteen minutes after being quiet there was not so much uneasiness. I then made an examination per rectum, and found an embolism of the posterior aorta, and also of the external and internal iliac arteries on the off side; the calibre of the arteries seemed to be diminished and the pulsation peculiar, as though one was trying to force a large volume of water through a small-sized rubber tube. The diagnosis I then made was embolism of the posterior aorta, at the bifurcation of the iliacs. Prognosis, unfavorable; treatment, none.

I then requested the privilege of making an autopsy when the animal should die or be destroyed. On the morning of February

1st, at the request of the owner, with my friend Dr. Eddie, I made another examination as before. After the animal had been exercised a few minutes, and presenting the same symptoms, Dr. Eddie concurred with my diagnosis. The next time I saw the animal was on the morning of February 4th, at Mr. Geo. White's barn. He had driven the mare and she had fallen, and was conveyed to his barn on a sled. He, White, thought she had spinal meningitis. The animal was destroyed, and in the presence of Dr. Eddie, Dr. Anthony, Mr. Wilbur, Mr. White, and several others, the autopsy was made:

There was no examination made of the head and neck. The lungs were normal; the heart somewhat enlarged, weighing nine pounds; the walls of the heart were thin and flabby; there was some thickening of the mitral valves; the viscera of the abdominal cavity were normal. On dissecting the posterior aorta within three inches of the bifurcation of the iliac arteries, I found complete blocking of these arteries, as you will see by examination of the specimen which I now present to you. On following the course of the external iliac on the off side, I found the clot extending to the femoral, popliteal and tibial arteries, and how much farther I do not know, as the autopsy was made under unfavorable circumstances. If any of the gentlemen would like to see other reports of similar cases, they will find some reported by Prof. Liautard in the April number of the *AMERICAN VETERINARY REVIEW* for 1880.

A CONTRIBUTION TO THE HISTORY OF THE DEVELOPMENT OF GLANDERS.

BY J. E. McNICOL, D.V.S.

On Sunday, February 27th, I was called to see a bay gelding, 12 years old, who had caulked himself five days previously. On examination, I observed a peculiar anxious look, with a pulse of 60 and temperature of $104\frac{1}{2}$ Fahr., and some lancinating pains in the near hind leg. There was a small slough of the skin on the inside of the coronet, and a peculiar discharge on the outside of

the fetlock, towards the anterior part, and two small openings just below the joint. A probe could be inserted, and penetrated to the articulation.

I made a diagnosis of frosted foot, and dressed it with oakum, and caused him to stand in cold water. The animal had not eaten anything since the previous day, and I ordered two ounces of diluted alcohol, with tincture of gentian, 8 to 1, to be given every six hours. In the evening the temperature rose to 105, and some symptoms of pyæmia appeared.

On the 28th the temperature was $104\frac{3}{4}$, pulse 65; the piece of skin between the two little openings had sloughed out, and a flow of synovia began to take place—the animal suffering considerable pain, and eating but a little; ordered two drams of salicylic acid, four times a day. In the evening the temperature was $104\frac{3}{4}$, pulse 56, and not so full and bounding.

March 1st.—The appetite had improved; the synovial discharge diminished; temperature about the same, and pulse 60. Same treatment.

March 2d.—The thermometer has fallen to 102; the pulse remains the same; animal eating well; no more synovial discharge. He is allowed to lie down. The bandage put on by the stableman has been a little too tight. Stopped the salicylic acid.

March 3d.—Temperature $102\frac{1}{2}$; pulse 60; new flow of synovia.

March 4th.—Condition unchanged. Was cast the night before, and seems much exhausted. Synovia runs freely. The salicylic acid was ordered again, with the cold water bath.

March 5th.—Temperature $102\frac{1}{2}$; pulse 55; appetite good. Another slough, about four inches square, has occurred below the fetlock.

March 6th.—Temperature $103\frac{1}{2}$; pulse 65; noticed irregular lumps along the abdomen, as if produced by a whip snap; but as the animal was tied against the side of the stall, I gave them but little attention. The discharge has much diminished.

March 7th.—Temperature $104\frac{1}{2}$. I had him backed out of the stall, and noticed a slight watery discharge from the nostrils. The

glands of the maxillary space were tender and swollen ; the appetite was poor ; the foot looked pretty well.

March 8th.—Temperature $104\frac{2}{5}$; pulse 65 ; appetite gone. A free, sticky discharge escaped from the nostrils. The lymphatics of the face were swollen.

March 9th.—Temperature $103\frac{3}{5}$; the septum nasi has several ulcerations upon its surface ; the discharge is abundant, and slightly bloody ; the lymphatics of the face are much swollen and cordy. All the symptoms of glanders were evident, and the animal was ordered to be destroyed.

EDITORIAL.

STATE VETERINARIANS.

When the first Board of Health in the United States was organized, a few years ago, in New York, and a proposition to appoint veterinarians on the Board was made, it was received with ridicule and sarcasm. The recommendation that "horse doctors" should be employed by the State in connection with an organization having for its object the care of public health, was treated as the wildest of absurdities. How changed is all this to-day ; and how different the popular appreciation of the competent and educated veterinarian ! Not only are veterinary surgeons receiving regular appointments from the city organizations ; not only have they at times been called upon to perform for the State duties appertaining to their profession ; not only does the General Government call upon them to ask their assistance in the investigation of diseases of domestic animals, and assist in the removal of the heavy embargoes placed upon our cattle on account of the existence of contagious diseases in a few of the Eastern States, but a more important recognition is now presented in the action of several of our State Legislatures. In those of Illinois, Kansas and Connecticut bills were introduced during the last session proposing the creation of the office of State Veterinarian ; and, if we are to trust current reports, the creation of such officers is likely to become a fact at a day not now far in the distance.

That the benefits to be derived from the performances of the duties allotted to these State Veterinarians will be largely felt by the people, none can deny; and the efforts made to perfect the proposed legislation are but part of the many existing evidences of the advanced rank that veterinary medicine is acquiring in the United States. With almost as many contagious diseases amongst our live stock as are found in the different countries of Europe; with pleuro-pneumonia in our Eastern States gradually threatening to invade our wealthy fields of the West; with tuberculosis prevailing as it does; Texan fever slowly gaining ground and enlarging its boundaries; with various forms of anthrax killing many valuable animals every year; with epizootic abortion in cows; foot and mouth disease; glanders and farcy in almost all our large cities; with hog cholera, chicken cholera—not to mention trichinosis and a few others—with all these, one cannot be surprised that at last our State governments are beginning not only to realize the danger threatening our stock, but also to appreciate the losses which we have already suffered, and which our general agriculture may have to suffer, unless proper measures are employed to check their progress.

The creation of the office of State Veterinarian would prove to each State essentially beneficial, and we have no doubt that they will soon be called to the active performance of their duties. These will, of course, be important, and those who will receive the appointment will not lack a sufficient amount of work, and with it of enjoying abundance of opportunities of elevating the veterinary profession to the standing in the eyes of the public which it has the right to claim.

The organization of sanitary measures, the accumulation of statistics which will necessarily result from the investigations which will have to be made relating to the etiology, pathology and prophylaxy of diseases; in fact, all matters connected with the prevention and suppression of contagious diseases, will furnish the State Veterinarian abundant opportunities for showing the vital importance of his profession in its direct relation to questions of practical political economy—questions which, while they have to the present time been almost entirely ignored in the

United States, have for a long time been comprehended by the governments of Europe, where sanitary veterinary departments are fully organized, and where it devolves upon Government Veterinarians to perform the duties belonging to them, and which they alone are qualified by education and experience to undertake with safety and advantage to the public.

Another important benefit attainable by the appointment of the officers referred to is this: The question of State Rights in connection with the measures necessary to the stamping out of pleuro-pneumonia has been, doubtless, more or less in the way of accomplishing the object in view and eradicating the disease from our State. Possibly even the Veterinary Bureau of the Agricultural Department in Washington might find, to-day, some difficulties in doing much, should it make an attempt to stamp out that disease. But how simplified would the work become, and how much better could measures be agreed upon, if, by consultation and agreement by these State Veterinarians and the representative of the Agricultural Bureau, regular sanitary measures were decided upon and permanently established. The Sanitary Veterinary Bureau (we might call it), thus composed, would be able to render the country immense service, by protecting our trade against the losses which otherwise it will surely suffer so long as those diseases are amongst us, and placing the United States in the position which they are bound to reach as the great live-stock market of the world.

A NEW OUTBREAK OF PLEURO-PNEUMONIA.

Another outbreak of contagious pleuro-pneumonia is reported by Dr. J. D. Hopkins, on the farm of Mr. James A. Hoyt, at Patterson, Putnam County, N. Y., amongst a herd of 40 head of registered Jerseys. The contagion is supposed to come from Baltimore, Md., or Sterling, Morris County, N. J. None of the farmers where Mr. Hoyt bought cattle last October have had the disease. Six head (three bulls and three cows) have died; and at the time the report reaches us, a three-year-old bull, which was very sick, is probably dead.

This new outbreak will no doubt determine the Legislature to make the needed appropriation for the work of stamping out the disease. Indeed, it is rumored that \$50,000 is the sum to be granted to carry on the work.

Dr. Hopkins reports New York City as being free from the disease; at least he has found no case of pleuro-pneumonia in his last investigations.

MICROSCOPIC EXAMINATION OF THE SPECIMENS OF DR. R. WOOD.

We have received from Dr. Peabody, Pathologist to the New York Hospital, the result of his examination with the microscope of the specimens of testicle presented by Dr. R. Wood at the last meeting of the United States Veterinary Medical Association. Unsatisfactory to him as it is, the Doctor says in his letter: "The two specimens received from you, one piece of testicle, the other a new growth, were both of them so very soft when I got them, that absolute alcohol will not harden them. I have cut them and mounted them. The testicle shows merely a macerated stroma of testicle, whose fibres are swollen and distorted (probably by water in the weak alcohol) in which are appropriate openings for the tubular structure of the testicle. These tubes contain no cells, however. In their neighborhood is a deposit of brownish pigment, the result either of frequent congestion or of extravasation of blood.

The other piece, designated by you as a sarcocele, is equally soft; and any cellular elements that it may have contained, are not now to be found. It shows only swollen and distorted connective tissue—fibres without characteristic arrangement."

EVERY member of the veterinary profession in America must have at least *one* interesting case in his practice during each year. If all of these were reported, the REVIEW and individual veterinarians would be greatly benefited.

HUMAN AND ANIMAL VARIOLÆ; A STUDY IN COMPARATIVE PATHOLOGY.

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR.

(*From the Veterinary Journal, London, England.*)

(*Continued from Vol. IV., p. 482.*)

VARIOLA IN FERÆ NATURÆ.

To what extent will animals in general suffer from variolous diseases it is impossible to say, as there is but little evidence, and that not of a very reliable kind. But that they are susceptible of infection, and are the victims of their own particular kind of variola, there cannot be any valid reason for doubting. We have seen that hares and rabbits are believed to have a variola, and hunters and others have occasionally reported wild boars, chamois, and other *feral naturæ* as affected with an eruption like small-pox.

The *Simiadae*, in an untamed state, would appear to be often attacked with variola. It has been observed that when small-pox has been prevalent in the West Indies, and also in South America, wild monkeys have been affected with a variolic eruption; though whether they were infected from mankind, or whether what is called the epidemic constitution of the atmosphere (a very doubtful influence) also produced an outbreak of variola among them, it would be difficult to decide.

These creatures certainly seem to be the most susceptible of all animals to the reception of human variola. Buffon and Barrier give instances of this susceptibility; and so long ago as 1767, it was known to the denizens of Saint-Germain-en-Laye, France, that a monkey became infected with small-pox through playing with diseased children. A similar instance is related by Paulet, as occurring at Paris in 1770. The two Danish veterinary professors—Abilgaard and Viborg—state that after having unsuccessfully attempted to convey human variola to cows, horses, asses, sheep and dogs, they inoculated a monkey with the virus of that disease. The little creature was attacked with small-pox, the

malady offering similar symptoms and pursuing the same course as in man. Diarrhœa set in towards the last stage of the disease, and it succumbed. Three children were inoculated with matter from this monkey, but without result.

Monkeys, it may be noted, have been successfully vaccinated; that is, in them vaccination has offered all the phenomena observed in children.

RESUME.

I have now brought my study of human and animal variolæ to a conclusion, and, in doing so, may state that with the materials at my disposal I have endeavored, to the best of my ability, to solve some of the difficult problems which always seem to me to require solution in connection with this deeply interesting and very important subject. The results of my observations and researches incline me strongly to the opinion, an opinion supported by facts, that every species of animal—in the higher orders at least—has its own distinct kind of variola, and that the variola peculiar to each species is capable of indefinite existence, transmission, or propagation in that species. But when we attempt to transfer the variola of one species to another species, then not only do we encounter difficulties, or even failure, but when successful we sometimes find striking differences and peculiarities in the resulting phenomena; whereas in the same species it is capable of easy transmission, and always preserves its own special characteristics. In some species the disease is “infectious” (*volatile virus*, if the expression be admissible), as well as “contagious”—as in man and the ovine, canine, cameline, and porcine species, it is merely “contagious” (*fixed virus*), immediate contact or inoculation being necessary for its production. In some species there is a great constitutional disturbance, and the mortality is serious—as in creatures the virus of whose variola is “volatile” (mankind and the sheep, dog and pig); whereas in others whose variola is propagated by a “fixed” contagium, there is little, if any, fever noticable, and the disease is benignant (cow, horse, goat).

Not only is the character of the eruption different in different species (as in man and the sheep and pig, and the cow, goat, and

horse); but in some species it is more or less local (*variola* with a *fixed* contagium), as in the horse, cow and goat; and in others general, as in the human, ovine, porcine, cameline. and canine species, (*volatile* contagium). The disease may, and does, appear in one species entirely independently of its manifestation or absence in other species; and it may prevail most extensively in one species—as in the human or ovine species—and yet other species manifest no traces of *variola*. The few instances recorded of the malady having been transmitted from one species to another, must be looked upon with grave suspicion, and particularly those which have reference to the accidental communication of human *variola* to the cow or horse. There can scarcely be a doubt that the gravest mistakes have been made in this direction; and for evidence of this, we have only to refer to one instance, which, strange to relate, has been quoted not only by medical, but by veterinary authorities in this country, as affording undeniable proof that human small-pox may be transmitted to the cow. It is the instance given by Ceely, and insisted upon by him as conclusive circumstantial evidence that human and bovine *variola* are one and the same disease. As the mistake made by Ceely has not hitherto been discovered, I take upon myself the responsibility of proclaiming the error, by reproducing his narrative of the occurrence, and commenting upon it. He writes:—

“At the village of Oakley, about sixteen miles from the town of Aylesbury, small-pox has been epidemic from June to October, 1840. Two cottages, in which three persons resided during their illness, were situated on each side of a long, narrow meadow, comprising scarcely two acres of pasture-land. One of these three patients, though thickly covered with pustules of small-pox, was not confined to her bed after the full development of the eruption; but frequently crossed the meadow to visit the other patients—a woman and a child—the former of whom was in great danger, from the confluent malignant form of the disease, and died. According to custom she was buried the same evening; but the intercourse between the two cottages was still continued. On the day following death the wearing apparel of the deceased, the bedclothes and bedding of both patients, were exposed for

purification on the hedges bounding the meadow ; the chaff of the child's bed was thrown into the ditch, and the flock of the deceased woman's bed was strewed about on the grass over the meadow, where it was exposed and turned every night, and for several hours during the day. This purification of the clothes continued for eleven days. At that time eight milch cows and two young heifers (sturks) were turned into this meadow to graze ; they entered it every morning for this purpose, and were driven from it every afternoon. Whenever the cows quitted the meadow the infected articles were again exposed on the hedges, and the flock of the bed was spread out on the grass, and repeatedly turned. These things remained till the morning, when the cows were re-admitted, and the contaminated articles were supposed to be withdrawn. It appears, however, that the removal of the infected articles was not always accomplished so punctually as had been enjoined ; so that, on one occasion at least, the cows were seen in the midst of them, and licking up the flock of the bed which lay on the grass. These cows were in perfect health when first put out to graze in this meadow, but in twelve or fourteen days, *five* (out of the eight) milch cows appeared to have heat and tenderness of the teats. The teats became swollen and small, hard pimples could be distinctly felt upon them, as if imbedded in the skin. These pimples daily increased in magnitude and tenderness ; and in a week or ten days they rose into *blisters* (vesicles), passing into brown or blackish scabs. When the teats were in this condition, and very tender, constitutional symptoms of ill-health became developed. Sudden *sinking* or loss of milk, drivelling of saliva from the mouth, frequent inflation and retraction of the cheeks, staring of the coat, "tucking of the limbs," "sticking up the back," and rapid loss of flesh, were the appearances which even the peasants themselves were able to appreciate. By the middle of the third week the pustules were mature, and the crusts and loose cuticle began to be detached. The simultaneous occurrence of the disease on all the animals increases the probability of the operation of one common cause. The whole of the cows was certainly affected within less than three days of each other ; and another circumstance requires particular notice,

namely, the occurrence of the disease in a young heifer (sturk) to which of course the disease could not have been communicated by those casualties which commonly propagate the vaccine variola amongst milch cows. The cause which originated the disease amongst them at the same time affected the young heifer, which hitherto had not been considered liable to the vaccine disease, simply because no one had seen the animal affected by it. Now it is known, both in this country and in Germany, to be liable to the disease.

“The proprietor of the animals referred to in this narrative had the disease communicated to himself. He had never suffered from small-pox nor the vaccine diseases; and it was his own spontaneous conviction ‘that his cows had been infected from human small-pox effluvia,’ to which undoubtedly they had been exposed. He had not the remotest idea of the medical theories concerning the nature of the disease, and consequently had no prepossession in favor of the opinion he thus spontaneously expressed. His cattle had hitherto been in good health, and no vaccine variola had been known in the vicinity.”*

Now it is easy to perceive, from this description, that the malady the cows suffered from was not variola at all, but simply Foot-and-Mouth Disease (*Eczema Epizoötica*). The *vesicles*, the *constitutional symptoms*, the *loss of milk*, but, above all, the *drivelling of saliva from the mouth*, *frequent inflation and retraction of the cheeks*, *staring of the coat*, *tucking up of the limbs*, *sticking up of the back*, *rapid loss of flesh*, are all typical symptoms of this epizoötic and now well-known disorder, and certainly not those of cow-pox. The foot-and-mouth disease was introduced into this country for the first time in 1839, and nothing being known of its history or symptomatology, it caused much astonishment, as well as surmise with regard to its nature. It spread rapidly over the three kingdoms. The prevalence of small-pox in the village of Oakley, and the occurrence of this bovine plague, among the cows, was a mere coincidence; while the almost simultaneous development of the malady in the latter is further proof

* Trans. Provincial Medical and Surgical Association, vol. x.

that the affection was not cow-pox, nor yet transmitted small-pox.*

When we consider the question of aptitude of one species to receive the variola of another, we again meet with marked differences. Some species will readily take the variola of another species, and retain it unimpaired in virulence through a continuous series of generations, while they will remain stubbornly refractory to the reception of the variola of a third species; or if they do receive it, it is in an abortive form, and cannot be transmitted beyond the second or third series of animals.

Vaccinia affords us a good illustration of this fact. In a remarkable paper written by Chauveau, and published in 1877,† on the vaccinogenous aptitude of the principal vacciniferous species, he gives the following general conclusions derived from his experimental study :

“1. Classical vaccination proves that the three principal vacciniferous species—man, ox and horse—are equally apt to transmit vaccinia indefinitely, and exhibit a like vaccinogenous aptitude. The horse, nevertheless, is distinguished by the relative frequency of true generalised vaccinal eruptions, which in young animals, may follow cutaneous inoculation.

“2. When instead of inserting the vaccine virus into the mucous layer of the derm, it is passed into the subcutaneous connective tissue, the virus manifests its action by two kinds of effects common to the three species: a more or less marked local affection is developed, and the animals acquire *vaccinal immunity* as absolutely as if they had undergone the classical vaccination. This double result is obtained equally well in the three species, so that they are allied, as it were, in the vaccinogenous aptitude.

“3. These ordinary and constant effects are not the only ones produced by the injection of the vaccine virus into the connec-

* At the end of 1878, Dr. Klein, experimenting under the supervision of Drs. Scaton, Burdon-Sanderson, and Mr. Ceely, had inoculated sixteen heifers and fifteen milch cows with small-pox matter taken from people at different stages of the disease, but with negative results.

† Contribution à l'Etude de la Vaccine Originelle, Journal de Médecine Vétérinaire et de Zootechnie. Lyons, 1877.

tive tissue. In the equine species, and particularly young animals, there sometimes occur magnificent pustular eruptions, which, in their seat and general characteristics, differ in nothing from natural horse-pox. These vaccinal eruptions have never been observed in the experiments on the bovine species, though they were numerous, and made under those conditions which are reputed to be the most favorable to the development of the so-called "spontaneous cow-pox." These eruptions have never been witnessed in experiments on man, though it must be confessed that the number of these was small.

But the negative results in the human and bovine species do not authorize the conclusion that these are refractory to the manifestation of the vaccinal eruption in the before mentioned conditions. But they demonstrate this important fact, that so far as aptitude for the development of this exanthem is concerned, the organism of the horse possesses an incontestible superiority.

"4. This superiority is manifest equally, whether the vaccine virus is introduced directly into the lymphatic or blood-vessels, or enters by the natural channels of absorption. The intravenous injection of vaccine matter—the most certain and easiest of these experiments—does not appear capable of producing vaccinal immunity in bovine animals. But in the horse not only does it ensure this immunity, but it often produces the vaccinal exanthemata which are an exact fac simile of those of the natural disease.

"5. The results of this experimental study show as well, if not better, than clinical observation, that the horse has a special aptitude for the natural and spontaneous development of vaccinia, either under the influence of occult *contagia*, or by the problematical intervention of any other equivalent cause which has yet to be ascertained. The bovine species is far from manifesting such an aptitude for the evolution of natural vaccinia. It might even be asserted that, in this respect, the ox is not superior to the human species—at least it is certain that the inferiority of the latter has not been demonstrated.

"From this study it is evident—and the evidence is further fully confirmed by clinical facts—that the organism of the horse is the real source (*vraie patrie*) of natural vaccinia, conformably to the views of Jenner."

Chauveau notes in the course of his remarks, that if the other supposed vacciniferous animals—the goat, sheep, dog, etc.—show more or less distinct eruptions when they are vaccinated, the virus cannot be indefinitely cultivated upon them ; it loses its activity very rapidly, often in the first generation.

With regard to the protective influence of one attack of variola from subsequent attacks, there can be no doubt ; and this protection has been sought for, with a view to preventing the more serious variola of certain species of animals, by inoculating them with the virus of a less malignant variola of another species. But here, again, we find evidence in support of our view, that every species has its own particular variola. Human small-pox, readily communicated from a diseased to a healthy person, can scarcely be transmitted, if at all, to the lower animals ; while horse-pox and cow-pox are easily transmissible to a number of species, and in man and the horse and cow, when inoculated, will certainly ensure against the natural disease. But we have seen that sheep-pox is not communicable to other animals (if we except the few, and not very reliable, instances recorded), and that vaccination will not protect ovines from their special variola.

But it must be confessed that experimental pathology has here an almost virgin soil to cultivate ; for we know but little of the degree of inter-communicability of the different variolæ, or of the protection they mutually afford against each other's operation. The subject is full of interest, and of the deepest importance to mankind, and that it has been so utterly neglected is one of the mysteries which overhangs many other serious problems in pathology.

I trust that the grave fallacy that vaccinia is only human variola modified by transference to bovines, will no more be heard of ; and that the claims of comparative pathology to recognition as a worthy helpmate to human pathology in the elucidation of this and other subjects in medicine, may be conceded and acted upon.

TRANSLATIONS FROM FOREIGN JOURNALS.

GENERAL PATHOLOGY.

OF THE POSSIBILITY OF RENDERING SHEEP REFRACTORY TO ANTHRAX BY PREVENTIVE INOCULATION.

BY MM. PASTEUR, CHAMBERLAND AND ROUX.

This note is a critical review of the experiments of M. Toussaint. The fact of the protection from anthrax by preventive inoculation is admitted, but the interpretation of the author, which however has been abandoned, is denied. "From our studies," says M. Pasteur, "which are very numerous, M. Toussaint's method is uncertain. Three cases may present themselves: 1st. The bacterides die by heat, and then the carbuncular blood is unfit for preventive inoculation; 2d. It does not die, but preserves a virulency which kills the sheep; 3d. It is modified. In this last case alone, it may preserve, that is to say, it may give rise to an anthrax which stops, and does not end in the death of the animal. Direct preliminary experiments do not more than enable us to recognize the condition of the bacteride after the warming of carbuncular blood. If we could succeed in obtaining it in a condition to permit it to be preserved, still it cannot be fixed by culture and often becomes modified with the blood containing it in a few days. The culture of the bacteride, properly reduced by heat, gives, again, a virulent bacteride, which is distinguished especially from the attenuated microbes of chicken cholera. Even in our experiments, we have seen that carbuncular blood kept for 30 minutes at a heat of 55° and whose modified bacterides could yet be cultivated, has given a virulent culture which killed two out of three inoculated sheep.

From the above it results that if one wished to inoculate flocks of sheep by the artificial method of M. Toussaint, he would be exposed to the danger of great losses, though he might affirm that those inoculated which might recover, had been protected from a subsequent attack. The method supposes, moreover, that a great quantity of carbuncular blood is at hand, a fact which would be a great inconvenience.—*Academie de Sciences, Gazette-Medicale.*

ON THE PRESENCE OF TRICHINÆ IN ADIPOSE TISSUE.

BY M. CHATIN.

All authors represent trichinæ as peculiar to *muscular tissue*, and are agreed in affirming its absence in adipose tissue, which should therefore possess an absolute immunity.

From the researches of the author, however, we are led to the conclusion that the presence of trichinæ in adipose tissue cannot hereafter be denied. The fact is interesting in the point of view of the natural history of the helminth, and perhaps also in respect to the prophylaxy of trichinosis. "It is necessary, however," says the author, "to observe the condition which characterizes most of the worms found in fat, to wit: that they are almost always free, or scarcely attached to the surrounding elements; one might consider them then as nematods which have not yet reached their normal station, if the presence of encysted trichinæ did not demonstrate the possibility of these parasites to accomplish, in that medium, the stage period of their existence. I even believe that the study of encysted trichinæ in fatty substance will contribute to elucidate the mode of the constitution of the cyst, a question upon which at the present time, helminthologists do not agree."

Such are the results given by observation; in respect to experimental facts, I limit myself to saying that animals in whose alimentation I had introduced these fats have not yet presented any morbid phenomena, while subjects of the same species, nourished with the muscular structure of the same parts, have presented the characteristic symptoms of intestinal trichinosis, which has already killed four of them. It seems then that the noxious action of trichinosed lards is quite feeble; but several facts throwing on this a certain doubt, it is indispensable to continue our researches and experiments.

At any rate, the presence of trichinæ in adipose tissue, especially of the encysted variety, demands a careful and final solution of the question of their possible presence in suspected meats, and the precautions properly following.—*Gazette Medicale*.

PATHOLOGICAL PHYSIOLOGY.

ON THE PASSAGE OF THE RED CORPUSCLES IN THE LYMPHATIC CIRCULATION.

BY MR. LAULANIE.

It is shown by the researches of M. Colin, and it is easy to see, that the lymph flowing from a lymphatic fistula always preserves its purity, and contains no red corpuscles. Those which are found in the thoracic duct are explained by the flowing of the blood itself into that canal, whose valvular apparatus at its insertion is more or less imperfect.

It were interesting to isolate the phenomena from all the unknown circumstances which intervene in pathological cases, and to reduce it, by experiment, to a degree of simplicity which brings the conditions under our view. To that effect I have made, in a horse, a lymphatic fistula upon one of the satellite vessels of the carotid. On the same side the ligature of the jugular was made with or without the division of the cervical cord of the sympathetic nerve. This double operation is not accompanied with œdema, but it may follow the single ligation of the jugular alone. However, in all the cases, whether the operation be followed by œdema or not, it necessarily carries with it the passage of the red corpuscles into the lymphatic circulation. This, however, does not take place immediately after the venous obliteration; the lymph remains pure for about twelve hours, after which one may count a few corpuscles, two or three, on the field of the microscope. Two hours later this may be equal to those of the leucocytes—twenty-nine to thirty. By an irregular increase this increases to the fortieth hour, when it reaches a middle average, varying, however, more or less.

To resume. 1st. The obliteration of venous blood vessels has for a necessary consequence the passage of red corpuscles in the corresponding lymphatics.

2d. A time quite considerable (about twelve hours) passes between the moment of the vascular obliteration and the appearance of the hematics in the lymph, during which artificial communications form themselves between the bloody and lymphatic vessels, unless, as it is said by Mr. Sappey, natural roads already

existing increase in size under the influence of the process.

3d. The number of the red corpuscles increases from their appearance to about the fortieth hour, and appear to oscillate into an average of from seventy to eighty, as disclosed on the field of the microscope.

4th. Physiological phenomena, such as mastication, which are accompanied with an increase in the rapidity and pressure of the blood, also manifestly increase the passage of the red corpuscles, and produce more or less of an effect upon the number of the white globules.

5th. The influence of the nervous system upon this phenomenon remains yet to be discovered.—*Academy of Medicine, Paris.*

EXPERIMENTAL PHYSIOLOGY.

ON THE DIGESTIVE POWER OF THE PANCREAS IN DOGS FROM WHICH THE SPLEEN HAS BEEN REMOVED.

BY M. MALASSEZ.

According to Dr. Schiff, the pancreas of dogs deprived of spleen is unable to digest albuminoid substances. This operation, first objected to by Kussana and Schindeler, was lately taken up by Herzen and denied again by Ewald and by Bufalini.

Lately the same experiment was made by M. Malassez. The pancreas of a dog, without a spleen for several years, had given him an infusion capable of digesting the albumen of an egg freshly cooked, and also specially of fibrine recently prepared. The dog had been killed, an important fact, while in full digestion.

Having lately had an opportunity to repeat the experiment on a dog from which the spleen had been removed several months before, a pancreatic infusion was made in the same manner, and an attempt to effect the digestion of fresh fibrine was made, strictly in the same conditions. Everything was alike, except in one point. The animal, instead of being in full digestion, had been fasting, and the stomach consequently was empty and retracted. On this occasion the fibrine exposed to digestion in the infusion remained undissolved, and after three days remained intact. This fact had already been observed by Corvisart in dogs which had fasted, but in which the spleen had not been removed.—*Gazette Medicale.*

EXTRACTS FROM FOREIGN JOURNALS.THE VETERINARY MEDICAL BILL IN GREAT BRITAIN.

The Veterinary Medical Bill which it has been proposed to obtain in England to protect veterinary surgeons, and to which we alluded in one of our last issues, is to be carried through Parliament as a Government measure. As such, its successful passage is almost assured, and one great advantage will be granted to the veterinary surgeons of Great Britain.—*Veterinarian*.

RABIES IN THE HORSE.

BY J. C. BERNE, M.R.C.V.S.

This is a case of an artillery horse, which was bitten by a dog on the 4th of July, at the superior part of the near nostril, and which, after an incubative stage of sixty days, began to show peculiar symptoms, described as follows:

The patient was a good-tempered, high-spirited horse, 13 years old. The earliest symptom manifested was on the 22d of September, when he was reported "shaking and trembling." On this day there happened to be a battery drill, and the horse was taken out by the Sergeant-Major, who usually rode him. On being mounted he was disinclined to move, but having once started, his natural free action seemed to return. Before reaching the parade ground, and during the commencement of the drill, he acquitted himself in his usual form, so that the impression created at starting of something being amiss with him was removed.

Shortly after the battery exercise had begun he seemed to "give" under his rider. He was then pulled up. Whilst at rest he began to bite the Sergeant-Major's *left* foot. This was not the sort of playfulness that horses at times are addicted to; it was more of a vicious snapping, and consequently attracted attention. During the return of the battery to the barracks he moved quite as lazily as at starting, nor did he respond to the pressure of the rider's legs.

He ate his mid-day feed, but whilst being groomed he was very irascible, attempting to bite, and striking out with his hind legs. In this way he conducted himself till the following morning, the 3d of September, when he was removed to the horse infirmary, which is quite close to the stable, and placed in a loose box where perfect quiet was insured. He did not quite finish his morning's feed, but in other respects he appeared so well that later in the day he was taken back to his own stable. He had scarcely returned among his old stable companions when his lately-acquired vicious excitement reappeared, and with increased virulence. It looked as if their presence supplied the stimulus needed to arouse the grave symptoms associated with the complaint. With careful management and much trouble he was re-installed in the infirmary and seen by the author.

When left to himself, he picked up bits of hay or litter; for the latter he seemed to bear preference. He commenced to chew it, when suddenly, and without apparent cause, he would cease to masticate it, and with ears moving and eyes watchful, would pause as if his attention had been suddenly arrested and concentrated on something known to himself alone. With his head toward the manger, and seemingly oblivious of everything passing behind him, no movement of the observer escaped him. If a hand was raised, the poor, suffering animal lashed out two or three times in quick succession. But the most remarkable symptom to be noted was the almost constant rubbing of the *near* nostril. This might be interrupted for a few seconds, only to re-commence with additional violence. At times he got into the position a horse assumes in micturating, and there was a good deal of flatus. There was no aversion to water; he drank some that was placed within his reach; nor did he show an antipathy to a dog which was put down near him. There were tremors, chiefly noticed in the muscles of the hind quarters, and those of the fore extremities were also similarly affected, when either of the limbs was in repose, or semi flexed. He was destroyed at 4 P. M. of the same day.—*Veterinarian*.

TREATMENT OF KERATITIS WITH WARM COMPRESSES.

BY M. BRUN.

Entering first into the anatomy of structure of the cornea, and giving the opinions of Colin, Abadie and Chauveau, also examining the different causes and various forms under which these affections are met with, taking into consideration the changes that this membrane undergoes during inflammation, the author arrives at the conclusion that "astringent treatment must be avoided, that saline caustics, and especially lead, have the disadvantage of leaving in the meshes of the structure metallic particles and indelible spots, and that the pencil of nitrate of silver must be more carefully used in the treatment of these affections. If there are cases where nitrate of silver can be used, M. Brun claims that it must be combined with warm compresses. The following is the *modus operandi* of the application to the diseased eye: Three or four times a day, during ten minutes each time, warm applications or fomentations, with a decoction of camomile, and having on the eye warm compresses wet with the same decoction, the heat being at 40° centigrade. Atropine and eserine cannot also be combined as local applications.—*Archives Veterinaires*.

ON THE NATURE AND ETIOLOGY OF STRINGHALT.

BY M. ORRILLARD.

The author mentions several cases where this difficulty of action at the hock joint was accompanied with lesion of posterior crural region, at or about the point where the tendon Achilles makes its projection before reaching the os calcis, and concludes by asking if laceration of the muscles of the posterior portions of the leg, and of the crural regions, or partial lacerations of the tendinous and aponeurotic portions of the cord of the hock could not give rise to that peculiar action, the pathology of which has been summarily attributed to a diseased condition of the sciatic nerve, to diseases of the hock joint, to ulcerations of the astragalus at the bottom of the trochiar surface.—*Archives Veterinaires*.

OF THE VALUE OF INOCULATION AS MEANS OF DIAGNOSIS OF
GLANDERS IN DOUBTFUL CASES.

BY MR. F. ST. CYR.

In a letter to Mr. Violet, of the *Journal of Zootechnie*, the author reports the result of several experiments he made relating to the inoculation of the virus of a doubtful case of glanders, and after stating that he has been brought by them to the conclusion that chronic glanders is as easily and surely transmitted by *inoculation* as the acute form of the disease, a fact which is not, generally speaking, admitted, he concludes by saying that in a *doubtful case, the carefully made inoculation of the discharge of the disputed animal to a healthy donkey, is a means of diagnosis*, perhaps not infallible, but *excellent, and susceptible of rendering great assistance to the practitioner*. Mr. St. Cyr does not know any better or more certain means than this.—*Journal of Zootechnie*.

REPORTS OF CASES.

COMPOUND FRACTURE OF THE OS CALCIS.

BY ROBT. HARRISON, D.V.S. HOUSE SURGEON HOSPITAL DEPT. A. V. C.

FEB. 26th, 1881.

Subject.—A grey mare, 8 years old, 16 hands high, belonging to a Mr. Harnett of this city.

History.—While being driven down a hill in a heavy coupe, the king-bolt gave way, and the body of the coupe fell on her off hock. With great difficulty, she was brought to the hospital, and the following condition was found on examination:

Condition when admitted.—Great difficulty in progression; would carry the off hind extremity forward, but when weight was placed upon it, would give way, showing much pain, and keeps the limb elevated from the ground. On the postero superior part of the hock are two lacerated wounds, each about two inches in length and about one quarter of an inch deep. There is but a slight hemorrhage from the wounds. The injured part is some-

what swollen. On manipulation distinct crepitation could be felt, and also heard by applying the ear to the part. Great pain is manifest from pressure. Temperature, 103, pulse, 48, respiration, 18.

Diagnosis.—A diagnosis was made of compound fracture of the os calcis, with little, if any displacement. The fracture was situated at the upper third of the head of the bone.

Prognosis.—A doubtful prognosis was given, for it was feared that constant movement on the part of the animal, and the great difficulty of applying a permanent dressing, would prevent perfect union. Also, the tension of the strong bi-femero calcaneus muscle would tend to pull the fractured piece of bone upwards. The only encouragement given was to place the animal in slings, and keep it in an immovable condition if possible for at least six weeks to two months.

Treatment.—The owner being very anxious to save the animal she was placed in slings, the wounds carefully cleansed, the hair clipped around their edges and an antiseptic spray of carbolic acid solution applied. Feb. 27th —Animal shows much pain, keeps the limb from the floor and moving constantly up and down; temperature, 104 2-5, pulse, 60, respiration, 20; anorexia; hock much swollen; from the wounds, an abundant discharge of purulent synovial fluid, (tendinous), which is thick and mats the hair; during the day, the parts are kept clean and the antiseptic spray of carbolic acid used for ten minutes five times during the day.

Feb. 27 to March 26.—During this time up to the 15th of March, the same treatment was observed, the mare regained her appetite, the reacting fever passed away, the tendinous synovial discharge became less, the wounds healed kindly, the œdema went down and the animal began to rest a little weight on the injured extremity. The slings were occasionally taken off and she received a good rubbing down.

On the 26th inst., all treatment was stopped. April 1st, she was taken out of slings and walked a few steps; she rested weight on the limb and was but slightly lame. The following day the slings were taken off during the day and put on again at night. This was kept up until April 6th, when the slings were taken

away altogether, and she was placed in a box stall and allowed to lie down and get up at pleasure—given a little walking exercise daily.

Discharged.—April 11, discharged—the wound all nicely healed, the hock somewhat thickened from the callus, very little irregularity in action, a perfect union established.

ABCESS AND FISTULA OF THE WITHERS—GANGRENOUS ERYSIPELAS
—SEPTICEMIC POISONING. DEATH.

BY THE SAME.

Subject.—A valuable saddle mare, 8 years old, 15.2 hands, from the Riding Academy, was treated for about two weeks for a saddle gall on the point of the withers. A fistulous tract formed about two inches long extending downwards and forwards. A weak solution of chloride zinc was injected and the track began to close up and recovery was imminent.

April 4th.—Being improperly confined in her stall she rubbed herself and on the morning of the 5th, was brought to the College Hospital with a large erysipelatous swelling, extending over the shoulders, and covering the upper two-thirds of both sides of the thorax.

The treatment consisted of a large pad of oakum saturated with carbolic solution applied over the swelling; was given gentle walking exercise during the day.

6th to 7th.—The swelling had extended lower and further forwards and backwards; hot poultice, changed several times during the day with hot fomentations, were applied.

8th.—When the morning visit was made through the hospital, the mare was found down, having slipped her halter during the night. Condition, loss of appetite, temperature 103, pulse almost imperceptible, respiration 60; shows colicky pains; was made to get up with difficulty but soon resumed the recumbent position. On examining the wound it appeared highly inflamed and had a gangrenous odor—swelling mostly gone. Alcohol \mathfrak{z} ii and sulph. quinia, \mathfrak{z} i was ordered every three hours; also received four

quarts of milk. 12 o'clock, colicky pain more intense; the visible mucous membranes of a livid appearance; temperature, 105; pulse almost imperceptible; respiration, 72; pupil of the eye widely dilated; 2 p. m., died in convulsions; before death the body was covered with profuse perspiration.

Post Mortem.—The thoracic cavity was filled with bloody serosity, sub-seral infiltration over the entire pleural surface. The lungs were oedematous, and the blood vessels filled with dark serous blood. The pericardium showed extensive pericarditis, with much effusion; petechial spots were found on its external surface; at the origin of the large vessels was much infiltration. The left heart was empty; shows extensive myocarditis, extensive petechiæ over the whole surface of the endocardium; the valves were granular. The right heart was also empty, showing petechiæ but not so extensively as in the left; the valves on this side were healthy, also much serous infiltration of both auricles and ventricles.

Abdomen.—The intestines were empty, extensive sub-seral infiltration of their parietal covering; the small intestines were congested; showed hemorrhagic spots around the glands. Peyer's patches were found congested.

The spleen was enlarged, engorged with blood, nodulated externally; the splenic pulp was very soft and friable.

The liver was engorged and congested; weighed about 25 pounds; friable and infiltrated; capsule easily torn and separated from the liver.

Bladder contained bloody urine; mucons membrane congested, especially at the fundus. The mesentery was congested and infiltrated throughout.

The stomach contained bloody fluid; a few clots were found around the pyloric orifice; the mucons membrane was congested and ulcerated; shows hemorrhagic spots, and infiltration into the sub-mucous tissue.

The left kidney was surrounded by a thick infiltration; the capsule easily torn out; the structure softened and congested.

The right kidney was softened in its cortical substance.

VESICAL CALCULUS—OPERATION OF LITHOTRITY—RECOVERY.

BY PROF. R. LIAUTARD.

On the 30th of March, 1880, a bay gelding, 7 years old, was brought to the hospital of the American Veterinary College with the following history :

For some time past the animal, which enjoys apparent perfect health, has shown some abnormal symptoms in the function of urination. When in the act of micturating he is taken with violent pains, and after passing some water, which varies in quantity—sometimes a full stream, at others only small drops, at times mixed with blood—he exhibits violent expulsive efforts. An examination, made by Drs. Robertson and Lockhart, has led to the discovery of the presence of a round body in the bladder, probably a vesical calculus.

On his admission to the Hospital he presented the symptoms already observed, and on rectal examination there was felt a large round mass, moveable and hard. The examination was accompanied, on the part of the patient, with very violent expulsive efforts.

A diagnosis of vesicular calculus being made, I decided to operate on him in the usual way. First it was thought to use the crushing apparatus of Bigelow, but thinking afterwards that it might not prove appropriate to the large size of the stone, the ordinary lithotritor was used.

The animal being prepared for operation, in the presence of Drs. Stein, Robertson and others, a catheter was introduced into the urethra, which was with much difficulty opened a little below the ischial arch. A long forceps introduced in the opening failed to seize and draw the stone through the meatus, and it was found necessary to crush it with another instrument. This was accordingly done, and two large pieces, with numerous smaller ones, were afterwards removed with some difficulty. The bladder was well washed, the wound dressed with an antiseptic wash, and the animal, much exhausted by the violent efforts he had made during the whole time of the operation, was returned to his stall. A little blood passed through the urethra, but soon ceased, and no

further treatment was applied beyond local applications to the parts, which became much swollen. A large sloughing of aponeurotic structure took place after a few days, and the animal was discharged convalescent, showing no more signs of his past trouble, with the exception of small quantity of pus mixed with his urine, probably due to a certain amount of cystitis which continued for some time afterwards, but ultimately subsided by the administration of mucilaginous drinks, principally flaxseed teas. The calculus was irregular, roughened on its surface, measured 16 centimeters in its largest diameter, weighed when dry 80 grammes, and was almost entirely composed of urates and triple phosphates.

COLLEGE COMMENCEMENT.

MONTREAL VETERINARY COLLEGE.

ANNUAL EXAMINATIONS.

The fifteenth session of this institution was brought to a close yesterday by an examination of the Graduating Class, conducted by a Board of Examiners, appointed by the Council of Agriculture, and consisting of the following gentlemen: Williamson Bryden, Boston, Mass., U. S.; Fred. W. McLellan, Bridgeport, Conn., U. S.; C. J. Alloway, V.S., Montreal; Chas. Levesque, V.S., Berthier *en Haut*, P. Q.; J. A. Couture, V.S., Quebec, and Arch. McCormack, V.S., Durham, P. Q.

The distribution of diplomas and prizes took place at three o'clock. The diplomas were distributed by Deputy Minister of Agriculture Lesage, who congratulated Principal McEachran on the success attending his efforts to promote the interests and standing of his profession, which was now acknowledged to be one of the most important in the country.

Mr. Thomas White, M.P., addressed the students, and expressed his pleasure at the progress which veterinary medicine had made within the last few years—from being in the hands of charlatans to being in the hands of educated scientists, a thing which the vast agricultural interests of this and other countries

demand, and spoke of the vast field of usefulness and success opening up in the Northwest, where educated veterinarians were wanted to protect the vast herds from the ravages of disease.

Principal McEachran then addressed the audience, as follows :

MR. CHAIRMAN AND GENTLEMEN:—On behalf of my colleagues and myself I beg to thank you for the encouragement given to the school by your assistance here to-day. It is very gratifying to see the growing appreciation of our efforts to raise the science of veterinary medicine and surgery to its proper position as a scientific profession, evidenced by complimentary remarks which have been spoken here to-day, by the presence of so many gentlemen of influence and position. I have to thank also those gentlemen who have afforded substantial encouragement in the form of prizes. I need not name them, as their names are already before you, and one of them, Mr. D. Morrice (who, I regret, owing to absence from the city, is not with us to-day), is universally known for his open-handed liberality in all matters of education and progress generally. I have to thank those gentlemen who have given us their valuable assistance as examiners, some of whom have come long distances to lend us their names to certify to the world that our young men have profited by the instruction they have received. I will not detain you longer, but will merely add to the advice so ably given to those of you who have to-day reached the summit of that steep hill up which you have been toiling for the past three years ; you can now look forward and you will see still higher objects, which by toil you can attain, but you will find that on yourselves, on your own individual efforts, will depend your future success. Contrary to what you expect your very scientific acquirements will often debar you from obtaining positions where science should be the chief qualification. Thus, for instance, the positions of inspectors of public abattoirs and meat supply, should be filled only by men of science, men who are experienced microscopists, but usually they are not ; why, because there are certain diseased conditions of meat (*trichinæ* for instance), which interested parties prefer not to be seen. You will have discouragement

ments in the opposition of quackery. You will have the "practical man" and his friends to sneer at your thermometer and other scientific aids to diagnosis, but you must not be discouraged by these. Could you look back with me to the position, the obscure position, of this profession in America twenty years ago, you would be encouraged by the hope that if the progress for the next twenty years was at all equal to the past, the profession will occupy its true position. For your encouragement I will say that I honestly believe that no other profession holds out equal prospects for active young men on this continent. Europe, because the services of veterinary science were neglected, and the warning voices of the profession were unheeded, to-day, from end to end of the continent, is a hotbed of contagious diseases. Britain turned a deaf ear to the warnings of the veterinary profession, and her agricultural ruin from cattle disease followed. The United States heeded not the warning, and a large extent of her seaboard States are blighted by disease, not only causing serious losses direct in the infected places, but crippling her export cattle trade by foreign embargoes, lessening its value by millions of dollars annually, but of infinitely greater importance, endangering her millions of cattle in the great plains of the West. Could United States legislators realize what that really means, the loss of hundreds of millions of dollars; not only that, but that it is a menace to the meat supply of the whole world, they would no longer trifle with the necessary legislation. You will see that the United States Government and people must and will awaken to the importance of the profession, and must and will place the great question in the hands of this profession. Canada, happily, has so far escaped the plague, and must and will on that account become the meat producer for nearly the whole world; and now that companies are being formed for the wholesale production of beef in our great Northwest, now that the value of our cattle trade is being comprehended in a measure, I think that Canada is not likely to lessen her interest in or even allow a profession which has been and must continue to be of such incalculable value to occupy any but an important position. You will thus see, gentlemen, that in the very nature of things your profession can-

not be other than an important one, and it now remains for you individually and unitedly to attain the confidence of the public, and demonstrate by your close attention to business, and by upright conduct, and by still further qualifying yourselves by continuing your studies, and I have but little fear but you will all occupy positions of which your teachers will be proud.

The following students enregistered during the past session : E. J. Carter, Montreal, P.Q. ; Richard Price, Montreal ; Walter Wardle, Montreal ; Benj. D. Pierce, Springfield, Mass. ; H. Quimby, Rochester, N. Y. ; A. R. Metcalf, Hudson, P. Q. ; C. B. Robinson, Middlemarch, Ont. ; J. M. Shally, Boston, Mass. ; T. J. O'Connel, Salem, Mass., U. S. ; Alfred W. Mears, Ottawa, Ill., U. S. ; H. Bisailon, St. Valentin, P. Q. ; R. Trall Whittlesey, Emporia, Kansas, U. S. ; Chas. H. Ormond, Milwaukee, Wis., U. S. ; H. Pilon, Vaudreuil, P. Q. ; James Brodie, North Georgetown, P. Q. ; Cyrille Drouin, St. Jean d'Orleans, P. Q. ; J. A. Duncan, Duncanville, Ont. ; Fred. Paquin, St. Andrews, P. Q. ; Josephat Labelle, St. Bizard, P. Q. ; Wm. B. Lemay, Bord-a-Plouf, P. Q. ; Piere Gadbois, Terrebonne, P. Q. ; A. J. Chandler, Coaticook, P. Q. ; B. A. Ponroy, Compton, P. Q. ; Olivier de Maisonneuve, St. Francois de Salles ; Donald Campbell, St. Hilaire ; L. W. Bergeron, Bord-a-Plouff, P. Q. ; Alex. Glass, Philadelphia, Pa., U. S. ; Edmond White, Montreal ; Wilfred Wilson, St. Philippe, P. Q. ; George W. Goetz, Buffalo, N. Y. ; Philias Labelle, St. Dorothee, P. Q. ; Ed. C. Crevier, St. Laurent ; N. A. Trndel, St. Genevieve de Batiscan, P. Q. ; Joseph Beaudry, Montreal ; G. Papineau, Montreal ; Wm. Bell, Kars, Ont. ; Henri V. Matte, St. Laurent, P. Q.

GRADUATES.

The following gentlemen, having fulfilled the requirements of the curriculum, and passed satisfactory examinations, written and oral, in botany, chemistry, physiology, *materia medica*, anatomy, obstetrics and cattle pathology, and practice of veterinary medicine and surgery, received the diploma of the Colleges : E. J. Carter, Montreal ; Charles Ormond, Milwaukee, Wis., U. S. ; B. D. Pierce, Springfield, Mass. ; Richard Price, Montreal ; N.

Albert Trudel, St. Genevieve de Batiscan, P. Q.; Hilaire Basailon, St. Valentin, P. Q., and L. H. Bergeron, Bord-a-Plouff, P. Q.

The following passed successful examinations in the English Class in

Botany—Prof. J. W. Dawson, McGill University—J. A. Duncan, A. W. Clement, James Brodie, W. Bell, A. J. O'Connell, A. W. Mears, B. A. Pomroy, and R. T. Whittlesey,

Physiology.—Prof. Osler, McGill University—Walter Wardle, A. J. Chandler, Alexander Glass, and D. Campbell.

Chemistry—Prof. Girdwood, McGill University—A. W. Clement, Alexander Glass, D. Campbell, W. Wardle, C. B. Robinson, A. J. Chandler, and J. M. Skally.

Materia Medica—Dr. James Bell—Charles Ormond, A. J. Chandler, W. Wardle, Alexander Glass, J. M. Skally, and C. B. Robinson.

IN THE FRENCH CLASS.

Botany—Prof. Roy, Victoria College—Cyrille Drouin, Ed. C. Crevier, and H. Pilon.

Physiology—Prof. Beaudry, Victoria College—P. Labelle, P. Gadbois, and O. Maisonneuve.

Chemistry—Prof. A. Meunier, Victoria College—P. Labelle, P. Paquin, P. Gadbois, and O. Maisonneuve.

Materia Medica—Dr. George Leclerc—P. Labelle.

The following prizes were awarded :

ENGLISH CLASS.

For best general examination, silver medal, presented by the Council of Agriculture; won by E. J. Carter.

Botany—Prizes presented by Prof. J. W. Dawson. 1st, J. A. Duncan; 2d, A. W. Clement.

Veterinary Medicine and Surgery—Third year, E. J. Carter, a microscope, the gift of D. Morrice, Esq.; 2d year, Walter Wardle.

Anatomy—Third year, E. J. Carter; 2d year, Walter Wardle; 1st year, A. W. Clement.

Obstetrics and Cattle Pathology—Third year, E. J. Carter; 2d year, A. J. Chandler; 1st year, R. T. Whittlesey.

Materia Medica—Third year, C. Ormond; 2d year, Alex. Glass; 1st year, Jas. Brodie.

Entozoa—Richard Price, prize presented by Prof. Osler.

Physiology—Walter Wardle, prize presented for special merit by Prof. Osler.

For Practical Dentistry—B. D. Pierce, prize presented by Wm. Bryden, V. S.

FRENCH CLASS.

Best general examination, silver medal; won by N. A. Trudel.

Pathologie et Anatomie—L. H. Bergeron, prize of books, the gift of L. H. Beaubien, Esq., M. P. P.

Materia Medica—Philius Labelle.

THE ANNUAL DINNER.

The annual dinner in connection with the College took place at the St. Lawrence Hall, when about sixty gentlemen were present. The chair was occupied by Principal McEachran, having on his right Mr. Thos. White, M.P., and Mr. Leclerc, the Secretary of the Council of Agriculture, and on his left Dr. Girdwood and Mr. Paton. The usual loyal toasts were given and duly responded to. The toasts of the medical faculties of McGill and Victoria Colleges, respectively, brought responses from Drs. Girdwood, Ross, Buller and Beaudry, and that of the Councils of Arts and Agriculture from Messrs. T. White, M.P., and Leclerc. A number of other toasts were proposed, and a most pleasant evening was spent.—*From the Montreal Gazette.*

CORRESPONDENCE.

VETERINARY TITLES.

ROCHESTER, N. Y., April 6, '81.

PROF. A. LIAUTARD:

SIR—I notice that the REVIEWS directed to me have V. S. appended to my name. In times past I have called myself a veterinary surgeon, and have appended the initials V. S. of these words to my name. I have never considered that the words veterinary surgeon were properly regarded as a title, as they merely

designate the name of an occupation, and the letters V. S. are merely an abbreviation of them.

Some years ago, at the suggestion of an ill-qualified graduate, I was asked, while on the witness stand of a circuit court, if I did not know that I had no right to use the title veterinary surgeon, as I was not a graduate of any college. I answered that I used the term to designate the kind of business I was engaged in. The attorney insisted I had no right to use the term, as it was a title conferred by colleges. The judge of the court ended the dispute by saying, "Every person has a right to designate the nature and character of his business by respectable and significant terms, and that he was not obliged to designate his calling by vulgar terms or coarse epithets." He said, for instance, "if a man were engaged in the calling of dentistry he had a right to call himself a dentist, and that he could not be compelled by any individual or legislative body to call himself a rotten-tooth doctor; and so also," he said, "you cannot compel a man pursuing the veterinary practice to adopt the vulgar epithets of horse or cow-doctor. So long," he said, "as he does not falsely assume doctorate or other degrees, he was not censurable."

Now, as far as I am concerned, I am not anxious to designate myself a veterinary surgeon. The term veterinarian suits me just as well, it is just as significant, quite as dignified, and I am content to designate my calling by it. I shall carefully avoid appending V. S., or veterinary surgeon, to my name hereafter, as I am anxious to avoid a feeling on the part of veterinary graduates that I am infringing on what they deem their exclusive right. Therefore, in sending letters or papers to me hereafter, direct simply to E. Mink, and I shall feel full as much honored as to have you append V. S. to it, when I know you think I am not entitled to it, and that it is an *overness* of honor conferred upon me. I will, however, insist upon designating myself a veterinarian, and would, if possible, contest the constitutionality of any law that might be made to prohibit it. I am led to writing thus after noticing that you approve of the attempted legislation in New Jersey in reference to veterinary surgeons.

Now, I consider it immoral and criminal to sail under false

colors, but I question if the proposed legislation is needed, as I am of the opinion that any man falsely assuming a degree or title is liable under the laws relative to fraud or misdemeanors, and can be fined and imprisoned for such an offense. But the term veterinary surgeon should be regarded as a designation to which no man or class of men shall have exclusive right. It designates an occupation, and a man actually engaged in the practice of veterinary surgery has a natural right to call himself a veterinary surgeon. Doctorate degrees need no protection other than the laws relative to fraud and misdemeanors afford it.

"Fraud," says Chitty, "more clearly occurs where one person substantially misrepresents or conceals a material fact peculiarly within his own knowledge, in consequence of which a *delusion* exists, or uses a desire calculated to lull the suspicions of a careful man, and induce him to forego inquiry into the matter upon which the other party has information, although such information be not exclusively within his reach."

So far as exclusive right of titles is concerned, it smacks a little too much of titles of nobility, a thing which the Constitution of the United States prohibits the States from conferring. Class legislation is a thing the masses of the American people are averse to unless clearly demanded by their interests. Their motto always has been, and I hope always will be, "Equal and exact justice to all, special privileges to none." The man who possesses a diploma or doctorate degree has a recommendation to the public that gives him all the advantages over the man who has neither that he is entitled to. Laws should hold and do hold both the graduate and non-graduate equally responsible for mal-practice. When it can be shown that a man is pursuing a calling for which he is wholly unfitted he should be legally restrained from practicing, whether graduate or non-graduate. This would be fair and equitable. There are other things than the lack of ten or fifteen months of college opportunities that unfit men for practice of human or veterinary medicine. Many men who are called qualified because they hold a college certificate are, in reality, totally unfit to practice successfully. To give such men special privileges by law over others who have studied hard under adverse circum-

stances, practised cautiously with good judgment and an aptitude for the profession which the graduated *dunce* does not possess, is an unfairness which right-minded men will not encourage. A law requiring every man to register and to state whether he is a graduate, licentiate, certified or non-certified veterinarian, is all that is needed except that it might be well to compel Directories to copy these registries so that graduates and licentiates may be enabled to apprise the public of the superior consideration to which they are entitled by virtue of their diplomas or doctorate degrees.

I think it would be just, however, to have a law, by which on complaint in legal form, that a practitioner is grossly ignorant and incompetent, and therefore a dangerous practitioner, that he might be summoned to appear before a board appointed by a district or county judge to examine such person, and if the charge is sustained, restrain him from practising until he could show that such disability be removed. This would not be class legislation but would be a protection to animals as well as owners.

I think any State legislature would willingly enact such laws as I have here suggested, and I would contribute my mite towards procuring them.

I notice with pleasure your announcement that the Review never has been and will not be allowed to become the representative of any particular society or association of this college or of that school as the impression of many is that it was otherwise.

Respectfully yours,

E. MINK.

AGRICULTURE AND VETERINARY SCIENCE.

DEAR SIR:—It has been evident for some time that there should appear in the columns of the REVIEW some brief notes upon subjects that interest not only the veterinary profession, but also the community at large. Particularly is this true with reference to the relationship existing between veterinary science, agriculture, and commerce. Our little journal finds its way into the hands of many agriculturists, men who would be quick to appreciate the value of well-chosen remarks upon subjects such as the

feeding and care of stock, draining, and its influence in preventing diseases, &c., &c.; articles that would present to them in a clear, concise manner the principles that underlie the breeding and proper management of stock, as well also as the best means of preventing outbreaks of enzootic or epizootic diseases.

I expect to meet with some opposition to this proposed course, and to be told that this is a veterinary and not an agricultural paper.

This, in a limited sense, is true. It is a veterinary journal essentially. But shall we leave no room for the discussion of those questions that affect alike the veterinarian, the farmer, and the stock-raiser?

I think not. An occasional contribution of the kind above suggested cannot detract at all from the value of the REVIEW to members of the profession, while it will very materially enhance its value in the eyes of the owners of the animals that come under our care. There is always a danger that a journal like this will become too exclusively "scientific," deal too much with abstract study, and thus, to a certain extent, lose its interest for the busy practitioner. It may be well enough for the student; it grows tedious to the man who is busy with every-day practice.

What we want, and exactly what we want, is a *variety*. If the common earthworm is implicated in the spread or development of enzootic outbreaks of anthrax, as has been proven by close and careful investigations, we want to know it. If there is a special agent that is better than any or all others in the treatment of certain forms of disease, we want to know it. If there are particular plants that cause such diseases as abortion or "garget" in cattle, both the veterinarian and the stock-owner are interested in knowing what it or they are. If special forms of diseases exist on peculiar soils, it is the duty of the veterinarian, through his paper, to so instruct the owner that by a proper treatment of these soils such diseases may be entirely prevented, or rendered less frequent in their outbreaks. The extensive trade in live stock between different parts of our own country and with foreign nations also, makes it imperative for the veterinarian to know the actual condition of that trade, its obstacles, and the best and quickest

way to re-establish it when necessarily interfered with. I infer from all this that our interests are not *exclusively* our own; that good will come out of such a plan as I have proposed; owners and shippers of live stock will be benefited, our own knowledge extended, and the REVIEW will become more and more interesting and valuable. It is to be hoped that those who have the good of the profession and the success of THE AMERICAN VETERINARY REVIEW at heart, will contribute to its columns, and make it what in fact it should be—a journal of veterinary medicine, in one and all its relations.

Yours, &c.,

C. B. MICHENER.

SUNDRIES.

FREAK OF NATURE.—A man in Worcester County, Md., has a ewe that a few weeks ago gave birth to a white lamb. They were both doing very well, when about two weeks afterward the same ewe gave birth to a large black lamb.

EXPORT OF LIVE STOCK.—The export of live animals in 1870 was but \$1,045,039, while in 1880 the total was \$15,882,120, an increase of 1500 per cent. in ten years.

GLANDERS IN OHIO.—Many horses in Belmont County, Ohio, have been attacked by a disease resembling glanders, and which is said to be incurable and contagious.

SHEEP IN GREAT BRITAIN.—The number of sheep in Great Britain for 1880 shows quite a falling off, as compared with the last few years—1876, 32,262,579; 1877, 32,220,067; 1878, 32,571,018; 1879, 32,237,958; 1880, 30,239,620.

SHEEP IN TEXAS.—According to the best information there are about 4,600,000 sheep in Texas. This will probably be increased twenty per cent. during the coming lambing season, bringing the number up to 5,000,000. Valuing them at \$2.50 each, would make the total valuation of sheep in Texas \$12,250,000.

A DEFEATED BILL.—An attempt was recently made in the British House of Commons to restrict the importation of live cattle, owing to the prevalence of the foot and mouth disease, but the bill was defeated.

DEATH OF LADY MACK.—The fast trotting mare Lady Mack, lately owned by W. H. Vanderbilt, Esq., of New York, died recently from fracture of the vertebral column, from struggling while being cast to be operated upon.

NEW BOOK ON THE DOG.—A new edition of "Management and Diseases of the Dog," by J. Woodroffe Hill, V.S., has just been issued by M. R. Jenkins, of New York.

CORRECTION.

It was by error that in our last issue Dr. J. C. Meyer was reported as having received the degree of M.D. from the Cincinnati Medical College. He graduated as Doctor of Medicine from the leading college in Cincinnati, known as the Ohio Medical College.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Gazette Medicale, Recueil de Medecine Veterinaire, Archives Veterinaires, Journal de Zoötechnie, Annales de Belgique, Revue d'Hygiene, La Clinica Veterinaria, Veterinarian, Veterinary Journal, Revue für Thierheilkunde und Thierzucht.

HOME.—National Live Stock Journal, Country Gentleman, Prairie Farmer, Ohio Farmer, Annals of Anatomy and Surgery, Medical Herald of Louisville, Practical Farmer, Boston Cultivator.

JOURNALS.—Daily Press Knickerbocker (Albany), Worcester Monthly Visitor (Worcester), Home Farm (Augusta), Journal of Materia Medica, The American Stockman and Farmer (Chicago),

Massachusetts Ploughman (Boston), Journal of Agriculture, Montreal.

PAMPHLETS.—Contagious Diseases of Cattle (Department of Agriculture), Contagious Pleuro-pneumonia (3d report), C. P. Lyman; *Etat Sanitaire des animaux domestiques en Belgique*, by Dr. J. M. Wehenkel; *Primo congresso nazionale dei Docenti e pratici veterinari Italiani*, by Prof. Lanzillotti Buonsanti.

CORRESPONDENCE.—N. H. Paaren, M.D., Chicago; R. H. Harrison, D.V.S., New York; M. Bunker, D.V.S., New York; J. E. McNicoll, D.V.S., New York; C. H. Peabody, D.V.S., Rhode Island; E. Mink, New York; J. C. Myer, Jr., M.D., V.S., Ohio; C. B. Michener, D.V.S., New York.

AMERICAN VETERINARY REVIEW,

JUNE, 1881.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

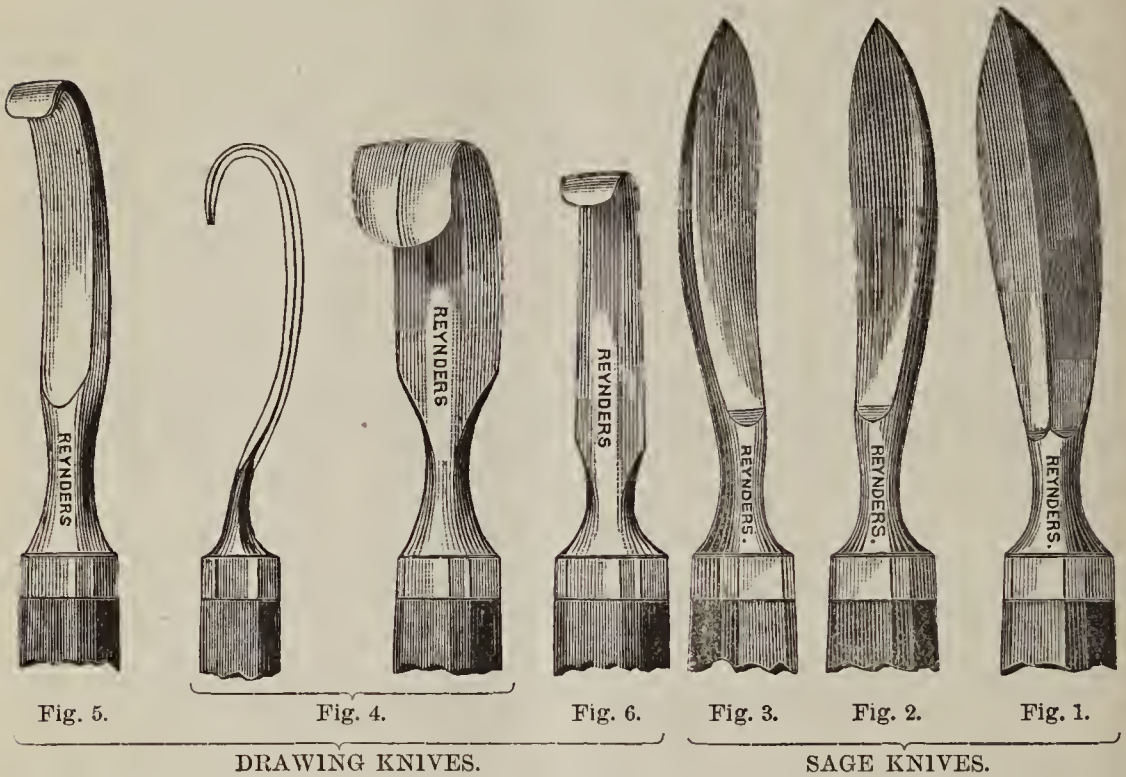
BY A. ZUNDEL.

(Continued from page 45.)

The surgery of the foot requires special instruments for the operations which influence action upon the hoof, as also for those which are to be performed upon the tissues of the foot proper.

Besides those which are commonly required in ordinary surgery, such as curved scissors, probes, bistouries and forceps, others are needed of special forms and for special purposes; amongst those most commonly used are the different sage knives and drawing knives.

Sage knives are lanceolated blades secured to handles, and are either double or right or left. The blade, which is curved upon its long axis, may be sharp on both edges, as in the double, (fig. 1) or on only one or other edge, when it is known as a right (fig. 2) or left (fig. 3) sage knife, being thus adapted to use by either the right or the left hand.



Drawing knives, which are made somewhat like those used by blacksmiths in the ordinary method of paring the foot, yet differ from those in being straighter in their attachment to the handle, and also on being curved on their long axis, being also sharp on both edges. The groove of the instrument is made to vary in width, and thus can be used as the different steps of the operation may require (fig. 4). Sometimes the drawing knife resembles more that of the blacksmith, as being sharp on one edge only, (fig. 5) and in this case the groove of the blade is generally much narrower than in the others. Some special operations require peculiar forms of drawing knives; for instance, those which are made with a blade perfectly straight and narrow, very slightly sharp on the edges, but having a very narrow groove at the extremity (fig. 6). These are used principally in the scraping of diseased bone-structure, in deep punctured wounds of the foot, and in cartilaginous quittor, when small sections of cartilage are to be removed from the lateral borders of the *os pedis*, which could not otherwise be accomplished.

Other instruments are also required, the description of which will find its place as we refer to the different diseases where they find their applications.

GENERAL OPERATIONS.

Removal of the sole (Germ., Absohlen).—This is an operation by which the sole of the foot is removed by severing it from the living tissues underneath. In times gone by this operation was extensively performed, being considered indispensable as soon as the slightest lesion under the sole existed. It was alleged that unless this was done the suppuration would be likely to spread underneath the horn. In our days, it is rarely performed, as it is considered that it presents but little advantage, so far, at least, as it involves the removal of the entire organ. Sometimes, however, portions of it have to be taken off, as in some special diseased conditions of the foot, such as in punctured wound, pricking by the blacksmith, burnt sole, etc., the *modus operandi* of which will be considered when treating of these diseases.

Removal of portion of the wall.—A few morbid conditions of some parts of the foot require in their treatment the removal of a portion of the wall, in order that the escape of pus, the removal of diseased tissue, or the sloughing of necrosed cartilaginous or bony structure, as in complicated cases of suppurative corns, of quarter crack or in cartilaginous quittor. A similar operation is sometimes required in cases of toe-crack complicated with disease of the os pedis.

These will be further considered when treating of these special subjects.

DRESSINGS.

As nearly every operation of the foot requires a mode of dressing peculiar to the manipulations which have been necessary, we shall, when speaking of the different diseases, where parts of the walls have been removed, include also a description of the peculiar dressing they require.

There is one, however, which is much thought of in veterinary surgery, and of what we will have to say more when speaking of punctured wounds of the foot. This is the dressing with plates, which serve to retain the plantar surface, the balls and pads of oakum, which are placed to protect the wound. The application of these plates is far superior to the leather sole,

because of its easy removal when the parts are being examined, and of their easy replacement; thus allowing the surgeon to change the dressing whenever he sees fit, without being obliged to remove the shoe.

DISEASES.

Canker of foot (Germ. Strahlkrebs, Hufkrebs).—Under this somewhat unscientific, though accepted name, is designated a peculiar disease of the feet of solipeds, seated in the secreting tissues of the horny box, always beginning at the frog, and characterized by alteration of the horny secretion. Names of a more scientific meaning have frequently been proposed, such as *gnawing ulcer* (Bourgelat), *schirrus* or *cancerous carcinoma of the frog*, *carcinoma of the reticular tissue of the foot* (Vatel), *dartre of the plantar cushion*, *chronic podoparenchydermitis* (Mercier), and *epithelioma of the frog* (Fuchs). None of these has ever been accepted, and the old hippiatric name has been retained.

History.—It is conceded that the old veterinarians were acquainted with canker, and Vegetius evidently speaks of it, but not until the time of Solleysel do we find a description somewhat complete of the disease and its treatment; Garsault, La Gueriniere, Weyrother and others spoke of it, and have expressed various opinions as to its etiology, and especially as to its treatment. So little progress was discernible in the writings of Bourgelat, Chabert, Huzar and Girard, on that very question, and so many false ideas were admitted, that Chabert in despair has called canker the *opprobrium* of veterinary medicine.

It is but recently that serious researches as to the nature of the disease have thrown some light on the question, and established the important fact that its seat is not in the disorganized horn, but in the secreting organs, and that there is an alteration in the products of this secretion; that it is consequently to these that remedies must be applied.

We might refer to the writings of Jeannié, Crepin, Hurtrel, D'Arboval, Prevost, Mercier, Plasse, Percivall, Dietrichs, Eichbaum, Wells, H. Bouley, Reynal, Haubner, Fuchs, Rey, Megnin, etc., each of whom has furnished his contingent, while still the intimate nature of the disease remains but imperfectly known, and

there is but little certainty either in the treatment or its results.

Let us observe, however, that in our days, canker has become comparatively a rare disease, especially in cities, which, doubtless, is because of the cleanliness of the streets. In the beginning of this century, canker and grease—closely related diseases—were frequent in Paris; then horses were obliged to travel through deep gutters of mud, while to-day these affections are exceptional occurrences (H. Bouley). The same thing has been observed by Percival in England. When hygienic precautions were not as well understood as they are to-day, in establishments employing large numbers of horses, when the stables of mail and stage coaches, and even those of military garrisons, were small, ill-ventilated and dirty, among horses standing in filth and soiled manure, these affections were relatively common; with hygienic improvements, they have almost disappeared. In the army, canker was the cause of considerable annual losses, almost as serious as those from glanders; to-day it is rare and almost unknown.

Improvements in the different breeds of horses, either by better choice of reproducers, or by changes in the mode of feeding, resulting from the progress of agricultural processes, the suppression of common pastures, etc., etc., have contributed to render the disease less common.

(To be continued.)

RETENTIO SECUNDINARUM IN THE COW.

BY DR. N. H. PAAREN.

In cattle practice, the veterinarian is not unfrequently called upon to attend to irregularities in the expulsion of the afterbirth. Depending upon the cause of the retention, its removal may be effected with or without manual assistance. In our own practice we have found, that in almost two-thirds of the cases, the removal of the afterbirth was effected by internal treatment alone.

Ordinarily, soon after the cow has calved, the so-called after-

pains begin, and, under normal conditions, the afterbirth is expelled in the course of the first twenty-four hours; otherwise it is often the case that it will not be discharged without assistance. Various circumstances may cause its retention; either disturbances in the function of the uterus, a faulty condition of the secundines themselves, or abnormal connections of these with the uterus.

The uterus, whose muscular fibres during gestation have become considerably extended, already begins to contract actively with the advent of the labor pains, and this, together with simultaneous contractions of the abdominal muscles, causes the opening of the *os uteri*, the escape of the liquor amnii, and the birth of the calf. As the empty uterus is then no longer influenced by the abdominal muscles, the expulsion of the afterbirth is effected alone by the uterine contractions; but various irregularities may prevent its expulsion. Among these may be mentioned, a poor and anæmic condition of the cow; beginning calving fever; advanced age; and protracted and difficult labor—under which circumstances the normal contractions of the uterus do not occur, or at least are not sufficiently effective.

When the calf leaves the uterus, a powerful stimulus to its action is removed; and this stimulus the afterbirth is quite inadequate to supply. If the uterus, from the causes just mentioned above, fails in discharging the afterbirth, it becomes accustomed as it were, to its presence, and it no longer acts as a stimulus, but it remains with the uterus imperfectly contracted around it. Gradually, the uterus, in a soft and flabby condition, descends beneath the brim of the pelvis, in a position considerably lower than the vagina and external genital parts. The moisture from the afterbirth, which latter is now a foreign body, and mucous secreted from the mucous membrane of the uterus, tend to soften the walls of the latter, often rendering them considerably tender. Thus the afterbirth is retained until it is removed by artificial means, or by its own weight, aided by a recumbent position of the cow, slides out through the yet open *os*, after being detached from the cotyledons by decomposition. Of course, the more the uterus and the abdominal walls have been expanded during gestation,

the more readily follows a condition of inertia and flabbiness of the uterus, and therefore, retention of the afterbirth is very frequent in cases of twin births and by old, lean, poverty-stricken and hollow-backed cows.

Want of contractile power in the uterus can also be dependent upon, or a consequence of morbid conditions. Thus adhesion may have taken place during gestation between the cornu of the womb and the abdominal walls, by which retroflexion or return of the cornu to its normal position is prevented. Such adhesion may be suspected when, on examination soon after delivery, the cornu of the uterus is found to be remarkably long, and when it cannot, as under normal conditions, be drawn towards the vagina, by pulling in the afterbirth.

The afterbirth may also be retained in consequence of a too rapid contraction of the os uteri, while the uterus itself remains inert and flaccid. Likewise, retention may be due to a too rapid retroflexion of the uterus; for we often find by detaching the afterbirth from its natural adhesions, that it adheres most tightly in the flexed cornu (most frequently the right cornu), and that it requires forcible bending of the hand and wrist to effect its detachment. Another cause of retention is a too firm connection between the afterbirth and the cotyledons. This condition is not unfrequently met with in the cow. It is very common in cases of abortion that the afterbirth, despite the powerful and repeated straining of the cow, is not expelled, because the adhesions have not been loosened by the expulsion of the unripe fruit, and as a rule it does not loosen before decomposition takes place. Even in cases where eversion of the uterus has taken place after normal calving, it is often found impossible to detach the placentulæ from the cotyledons. A too firm connection between the afterbirth and the uterus, besides being ascertained while attempting its removal, may be suspected from the strong but ineffectual after-pains of the cow. By inserting the hand in the uterus in such a case, the powerful contractions almost paralyze the hand and render manipulation impossible.

The importance which the retention of the afterbirth has, as regards the life of the animal and its economical usefulness, varies

considerably. If the general condition and state of health of the animal is good, if there is no straining, and if a considerable portion of the afterbirth is visible externally, there is generally no danger. The more of the afterbirth that protrudes soon after delivery, the greater is the probability that it will readily depart, and *vice versa*. But, should the animal lose its appetite and become drowsy; should diarrhœa and severe straining ensue; if the external parts become swollen, red and ulcerated, and the afterbirth decomposes, the condition of the animal must be regarded as precarious.

The qualitative condition of the secundines may vary, and this circumstance seems not to be without influence upon the retention and its consequences. Thus it is sometimes found to be tough, strong and leathery, a condition which long resists decomposition; so that, even after the lapse of eight days, it may yet be found comparatively fresh, in which case its retention does not seem to inconvenience the cow. In other cases it is found to be rather flabby, of loose texture, slimy, blue-colored from overfilling with blood, very tender and easily torn, soon decomposing, and thus in a high degree possessing the conditions favorable for the development of pyæmia. It seems, furthermore, that the danger from retention of the afterbirth to some extent may be enhanced by accidentally prevailing diseases, and especially during the prevalence of typhoid or putrid diseases among cattle.

From what we have said about some of the causes of retention of the afterbirth, it will be apparent that treatment in every case must vary considerably. Where the cow is quiet, the general health undisturbed, and the nearest cause of retention may be looked upon as due to relaxation or want of contractibility, the use of savin or ergot is indicated. The dose of ergot is from two drachms to half an ounce, given two or three times daily, together with juniper berries, calamus root, &c. *Herbæ sabinæ* may be given either in the form of infusion, an ounce to twenty-four ounces of water, at one dose; or, in the form of powder, from one-half to one ounce, two or three times daily, either alone or together with aromatics. If the cow strains so much as to make it probable that a too close adhesion exists between the parts, the

use of half ounce doses of carbonate of potassium, together with slimy fluids, such as flaxseed or hempseed tea, will be indicated. However, in practice, we will often find cases, for instance, in fat and strong cows, where it will be proper to combine carbonate of potassium with savin or juniper berries, for the purpose of at once effecting detachment of the membranes and expulsive contractions of the uterus. Provided that the general condition of the cow remains unimpaired, these remedies may be continued during six to eight days. Should, however, loss of appetite and diarrhoea set in, the use of savin must be discontinued.

If, in spite of internal treatment, the afterbirth should be retained, it will be proper, after a week's time, to attempt its removal. This may be effected either by winding it off by means of one or two sticks, or by inserting the hand into the uterus and detaching the adhesions with the fingers. If, on account of a tender or friable condition of the membranes, the winding process does not succeed, and it is allowed to remain until it passes off in a decomposed condition, the floor of the stall should be arranged to make the cow stand much lower with the hinder parts; and with a view of abating the fetid odor and to wash out detached portions of membrane, it will be proper to use frequent injections of a weak solution of chloride of lime, which should be made with bloodwarm water and used immediately.

The removal of the afterbirth is indicated in cases where the cow strains violently after calving, so that eversion of the uterus may be feared; furthermore, when the usual remedies have been employed without effect; and, lastly, when the general condition of the animal is disturbed, and we have reason to fear the appearance of inflammation and absorption of decomposed matter. As already mentioned, the removal may be effected by winding it off. This process generally proves successful when the membranes are strong, which they generally are in cases of abortion, or when several placentulæ already have made their appearance externally, and this method is both the most convenient for the operator and the least dangerous to the cow. While engaged in the winding, the afterbirth should not be otherwise pulled in, and the winding should proceed by turning the stick in an upward and forward di-

rection. Should the membranes part, it is best to wait a few days, when they may be found loosened. As there nearly always is more or less of putrescent fluid accumulating within the uterus, of which a portion is expelled with the membranes, it is proper, with a view of furthering its escape, to arrange the stall so that the cow may lie lower with the hinder parts.

The other method of removing the afterbirth consists in detachment of its adhesions by aid of the hand inserted into the uterus. While that portion of the membranes which extends outwardly is taken hold of by one hand, the other hand is inserted between the membranes and the wall of the vagina, and passed through the os uteri as far forward as may be necessary. The placentulæ are then sought for and each one carefully separated from its attachment with the cotyledons of the uterus. In some cases the operator may thus succeed in removing the placental sac entire and without rupturing it. To succeed in removing the secundines, the os uteri must yet be in a relaxed and open state. It is known that its closure generally takes place about twenty-four hours after calving, but when a large portion of the secundines protrude through the same, it will be found possible after six to eight days, with proper care, to penetrate it with the hand. The application of great force on the walls of the os uterus, after it has closed, should be avoided, as such force may result in rupturing the organ. Such rupture is not always dangerous, but cases have occurred where the contact of putrid matter with fresh wounds have been the cause of dangerous metritis. Should it appear that the placentæ adhere too tightly to the cotyledons, it will be best to desist from any effort at removal of the secundines for the present, for not only will a continued effort at removal result in tearing the membranes, but only a portion may be removed and the rest remain to decompose. The irritation caused by such forcible attempts is very apt to result in dangerous inflammation of the uterus.

The consequences of removal of the secundines by the hand can never be anticipated or foreseen. Thus, in cases where we have occupied several hours in detaching the membranes by the hand, and where the cow before and after the removal of these

had strained violently, an easy recovery soon followed, while other cases, where the detachment was very easily and completely effected, have resulted in severe metritis.

When only the ends of the arteries of the umbilicus protrude through the vulva, and the cow otherwise is quiet and well, it is best to limit the treatment to internal remedies, and when these do not prove effective in the course of eight days, the removal of the membranes may be attempted by the winding process or by the insertion of the hand.

In connection with this subject, it may be stated that the removal of the afterbirth will require the assistance of two men, one to hold the head of the cow and the other to hold the tail aside and upwards. The removal of the afterbirth is not without some danger to the operator. The continued contact with putrescent matter is apt to produce severe erysipelatous inflammation, the formation of abscesses, enlargement of the lymphatic glands at the armpit, fever, herpes zoster, &c. From the latter painful affection the writer has suffered twice, each case being traceable only to putrescent infection, after removal of decaying afterbirth in one case, and after the removal of a dead and decomposed calf in the other case. The danger of such infections may generally be obviated by precautionary measures. It is our custom to liberally anoint not only the hand and arm, but also the genital organs of the animal, with oil or hog's lard, the latter of which is generally always attainable. As both hands by turn will be required in detaching the afterbirth, it is our custom to wipe off the hand and arm first inserted and to repeat the anointing a second or third time, if their insertion is again required. When the operation has been concluded, the arms and hands should be thoroughly cleaned with soap and warm water. A person with wounds or sores on his hands or arms should not engage in the operation. As the performance of the operation requires partial undressing of the operator, he should avoid exposure to drafts of cold air in the stable. As a protection to the clothing, the use of an old rubber overcoat without sleeves has been found very desirable by the writer.

COMPLETE PROLAPSUS UTERI.

BY J. C. MYERS, JR., M.D., V.S.

April 12th, 1881.—I was requested to repair to the country about four miles distant, to render obstetrical services to a cow.

On my arrival, instead of encountering a case of dystocia, as represented, I found the patient prostrate in the stable, with a dead calf lying behind her in a pool of blood, and the uterus inverted, with most of the placental attachments still adherent. My first act was to remove the foetus and coagulated blood.

I then placed the uterus upon a rubber buggy apron, cleansed it with warm water, and began to detach the placenta from the cotyledons, as much as possible, without inviting hemorrhage. These preparatory measures being accomplished, I, with the aid of an assistant, who supported the fundus of the uterus, proceeded to replace the misplaced organ, beginning at the cervical portion, and gradually engaging the body and then the fundus of the uterus, into the pelvic cavity, which readily dropped into the abdominal cavity. The cow made strenuous efforts to resist the operation, by frequent uterine contractions. Even after it was *in situ* she made repeated attempts to eject the organ, but the retention of my hand within the uterus prevented a secondary prolapsus until positive appliances could be adjusted to retain the unruly organ.

Not knowing the nature of the case before leaving my office, I was unprepared to meet the emergency, and was, therefore, obliged to have recourse to the best means at my command.

Before taking any steps in the operative procedure, I prepared a pessary out of a shovel handle, which acted admirably well, and it is this feature in the management of the case that prompted me to report it. The shovel handle measured from 50 to 60 cm. in length, rounded off at the cut extremity, and notched at various points for a distance of 5 cm. from said end. This serrated arrangement served to fasten by means of twine a bulb 8 to 10 cm. in diameter, made of old linen and cotton. The bulbous portion of this self-made pessary was introduced into the

vagina, against the cervix uteri, taking the place of my hand, and the other extremity (the handle proper) was left protruding outside of the vulva, with its aperture (measuring 5 by 8 cm.) well exposed. Through this opening I passed a small board 40 cm. long and 8 cm. wide, the centre of it being secured to this extremity of the tool (if it can be so termed) with twine. The distal ends of this board extended from one ischial tuberosity to the other, respectively. Each was furnished with a small rope, which, after being drawn forward along the lateral walls of the thorax of the cow, was tied to the sides of a collar that had been placed around her neck for this purpose. By this method of attachment the pessary constantly retained its proper position. Restlessness or violent straining produced no distorting effect upon it. Another excellent property the pessary exemplified in this case is, that by it acting as a foreign body within the vagina and in the vicinity of the cervix uteri it gave rise to uterine contractions, thereby arresting the post partum hemorrhage, which was absolutely essential, as the cow had lost a great quantity of blood, causing her to collapse into a semi-comatose condition, from which she was afterwards lifted through the agency of alcoholic stimulants and eggs, and by the 15th inst. was apparently convalescent, when the pessary was removed. I must apologize for adopting so crude a method as this for retaining the uterus in position. If correct information as to the character of the case had been communicated to me by the messenger, I would have been provided with a pessary more elegant, but cannot say better for the occasion. Besides, the case being an urgent one, would not permit any delay by sending for it, and I was therefore forced to resort to this plebian method. I must, however, acknowledge that this ordinary tool is better adapted against inversion of the uterus than the instrument I had made to order, which is a pad pessary with a loop at its outer end, as described by Franck in his German veterinary obstetrical work; also by Fleming in his work on veterinary obstetrics, who in addition speaks of the transverse piece of wood, with an eyelet at each end and made to move up and down the handle by means of a screw, being sometimes substituted for the loop of cord. In my opinion it is at all times

preferable to the loop, as it not only serves to steady the pessary, but also produces a gentle pressure upon the vulva and ischial tuberosities, which materially assists in retaining the uterus.

A surcingle encircling the chest occurs to me as a better method to attach the said ropes to, especially if the surcingle is in turn secured to a collar to prevent it from slipping backwards.

GLANDERS IN THE SEVENTEENTH CENTURY.*

This equine disease is presented in two forms, the one known as the white or stone glanders—weisse sonsten stein-rotz genannt—which is curable in the early stages, and the other, which is called yellow and mixed with blood (these terms refer to the color or character of the nasal discharges) and which gives forth an evil odor, and is incurable.

The signs of the disease are:

1. When a horse having the disease is ridden hard and checked suddenly, it will appear as if suffocating for want of breath.
2. The material which flows from the nose sinks to the bottom of a vessel filled with water, if thrown into it.
3. The flow is constant.
4. If the flow is white and odorless it is "stein-rotz."
5. If yellow, reddish or mixed with blood, the case is incurable.
6. Such horses often let fall a rotten moisture—"faule Feuchtigkeit"—from the mouth.
7. When water is given them, a great mass of stuff is often to be seen discharged from the nose and mouth.
8. The ears and head droop.
9. Breathing is heavy.
10. Appetite is poor.
11. Cough, and are sucked up in flanks.
12. Have cold nostrils.

* From the *Hippieter Expertas* of Winter von Adlers Flugal, Nuremburg, 1678.

13. Are emaciated and lazy.
14. The hair on the neck (mane) falls out easily.
15. Such horses give off an offensive smell.

This all comes to pass in three ways :

- 1st. The discharge comes from the brain.
- 2d. The animal has chronic disease of the throat.
- 3d. One horse can infect others.

That from the brain is due to a superfluous amount of moisture in that organ, which causes a corruption. This discharge is white and cold ; if it is yellow the case is worse and incurable. Chronic pharyngitis also comes with the disease.

Treatment.—Bleed, but not too much, to be again repeated the following day.

Give :

℞ Myrrhæ j. 3.
 Aristolachiæ.
 Gentianæ AA ij 3
 Bacc. lauri.
 Eboris AA ss 3̄.
 Rad jalap.
 Fol. Saldonella ij 3.
 Agarii ss 3̄.
 Mellis iij 3̄
 Vini ij 3̄.

D. S.—Mix well together, and give the horse this dose each day for four consecutive days.

Care.—Such horses must be strictly separated from others, in a moderate temperature, and as the material which collects in the brain is of a cold nature, they must have warm and dispersing feed and drinks.

The daily drink of such horses should consist of :

℞. Herb. centaurii. (3 hands full.)
 Garlicks.
 Ginger AA iij 3̄.
 Nasturcian ends ij 3̄.
 Flag-root iv 3̄.
 Licorice iij 3̄.

Agaricum ij ℥.

Turbith, j ℥.

R. Sambuci j ℥.

Mellis ix ℥.

D. S.—To be steeped in hot water, strained, and given cool to horse to drink.

AN EPIDEMIC OF TRICHINOSIS ON THE JORDAN.*

BY DR. JOHN WORTALUT.

The outbreak of the disease was traced to a wild hog killed in the swamps adjoining the village of El Khiam, on the 25th of November, 1880. The animal was a very large boar, and I was told that its flesh appeared fresh, fat and perfectly healthy.

A large number of the people of the village ate of the flesh of this hog, partly in a raw and partly in a semi-cooked condition. Not one of these persons escaped invasion. The head of the boar was sent as a present to a family in an adjoining village. It was cooked three times before any of it was eaten, and although quite a number of people ate of it, none of them became sick. All those who partook of other portions of the hog remained apparently healthy until the second, in some, and in others, the third week subsequently. I heard of only one man who was taken with vomiting and diarrhoea soon after eating; in this case the phenomena of the disease were very mild. Another ate the meat well cooked, and remained free from any indications of infection to the end of the fifth week after partaking of it. This person was not confined to the bed.

The principal phenomena which became apparent during the third, fourth and fifth week of the invasion were, oedema of the face and extremities, severe muscular pains, more or less fever and itching over the whole body. The pains complicated the active muscles, inclusive of those of the lower jaw, larynx and pharynx; but were most severe at those points where the muscles

* Virchow's Archiv, vol. 83, p. 553.

lost themselves in their tendons upon the extremities. The fever only assumed an exacerbated type in fatal cases. Children suffered less than those of mature years. Some cases of relapse were apparent.

The number of persons diseased, were : Men, 124 : women, 103 ; children, 35—total, 262. Ending fatally : Men, 3 ; women, 3—total, 6.

This is the first case of the kind reported from the Orient, and is also of value as indicating that the wild swine of this region are the subjects of trichinosis, as well as those of Europe.

“B.”

EDITORIAL.

LEGISLATIVE APPROPRIATION FOR PROTECTION AGAINST PLEURO-PNEUMONIA.

Another appropriation has been granted by the Legislature of New York in support of measures against the spread of contagious pleuro-pneumonia.

That the act by which the labors of the Cattle Commission, which existed some months ago, were suspended, was a very unfortunate and short-sighted one, will be easily demonstrated, when the new Commission shall enter upon its labors. When General Patrick found his funds cut short, the Commission had nearly acquired control of the disease, and it was but a question of time and a few thousand dollars for New York to emulate Massachusetts in her exemption from the bovine lung-plague.

It will probably not be very difficult now for the new Chief Veterinary Inspector to manage the disease, since it is probable that the different infected districts are pretty well identified and known. And it certainly must be so if the Veterinary Inspector appointed by the Commissioner of Agriculture of the General Government has fully performed his duty.

We have no doubt, however, that, when the first Commission ceased to exist, and as soon as existing restrictions became less energetically enforced, the disease had once more proved its tendency to spread. We understand, indeed, that an infamous clandestine

trade has since then been carried on, and that diseased cattle have been allowed to travel without any molestation whatever. For these reasons we are anxiously longing for the appointment of the Commission and the Chief Veterinary Inspector. The qualifications and acquirements of a good diagnostician, a good pathologist, and a good sanitarian, with good executive ability, will be necessary in the man who will have the duties of the office to perform, and certainly the veterinary profession is not at present overcrowded with men possessing the accomplishments required. Whoever he may be, he will, no doubt, share the sympathy and good feeling of the profession in the State and at large; good feeling, which will insure him needed assistance in his labors, and sympathy, if failure should characterize the end of his efforts, resulting from similar causes to those which have before operated.

This action of our Legislature, however tardy, must be accepted by all as a full recognition of the necessity of stamping out the disease. But if New York has been slow to act, other States have not been; for, in all directions, we hear the expression of great anxiety, in view of the possibility of the lung plague spreading among our western herds. The action of the Wyoming Cattle Association, in appointing a special veterinarian to inspect cattle for the dreaded infection; the proposition in the great State of Iowa to establish a veterinary bureau to protect her immense wealth in cattle, are all indications of the dread with which the cattle-raisers of those portions of our territory view the possibility of the appearance of the disease—a dread which is not exaggerated, and will be fully comprehended by all who are acquainted with its insidious, but not the less destructive, march. It is a fear which is too well-grounded and rational to be overlooked, when it is remembered that it needs but one animal to carry death and ruin amongst our western herds.

NOTICE.

It is with regret that we have to remind, for the last time, those of our readers whose subscription for the last year has not been paid, that the REVIEW will not be mailed to them after this number.

ANTHRAX IN THE WEST.

We have received from one of our correspondents, papers and a letter relating to the existence of anthrax diseases under their different forms in Nebraska and Iowa. Dr. Foote, who was called to that part of the country by the Wyoming Cattle Association to inspect cattle for pleuro-pneumonia, found, when he arrived there, that anthrax was destroying herds at a great rate, mostly occurring in the apoplectic form. Attributing it to local causes, preventive measures were, at the suggestion of the doctor, instituted at once. The municipal authorities were found ready to promulgate all necessary orders to prohibit the use of milk and the utilizing of the dead carcasses. In relation to this latter point, Dr. Foote will have a great opportunity to test the value of the suggestion made recently in Europe, by M. Pasteur and Bouley, in relation to the disposition of cadavers of animals dead by anthrax, viz., that of cremation. If the origin of so-called spontaneous anthrax can be found, as it was proved by the observations of Pasteur, to be due to the carrying of the germs of the disease by earth worms, the precautions recommended will prove only temporarily beneficial, and other outbreaks may be looked for, unless the germs of contagion proper, the cadavers, are destroyed by fire. The time has gone by when the etiology of the disease could be attributed to such agents as dampness, bad feeding, marshy soil, etc.; and if the bacterias are the cause of it, if, as Pasteur suggested, anthrax is the bacteroid disease of cattle, the measures of isolation, separation of flock, change of feed, etc., will fail to secure its eradication. And again, will it be possible to do so at once—will not a long time be required? It is more than questionable? Anthrax has been prevailing in the west for years; cattle have in some cases been buried, and probably, in others, have been allowed to decompose on the surface without being placed into graves at all, and it may be assumed that the soil is saturated with germs, and sudden outbreaks may be expected at any time. Dr. Foote, in his new location, has a splendid opportunity in his hands, not only to relieve the western States of the ravages of this fearful disease, but also to test the value of new preventives and

new mode of eradication, which, after all, are the only sanitary measures to use. He may, again, by his microscopic examinations, succeed in throwing much light on doubted and unsettled points connected with the etiology of anthrax.

THE COMMISSIONER OF AGRICULTURE.

The resignation of Gen. W. LeDuc, of the position of Commissioner of Agriculture, having caused a vacancy in that office, Dr. Loring of Massachusetts has been appointed as the new Commissioner. Well acquainted with agricultural matters, and fully aware of the value of veterinary science in connection with them, we of veterinary profession may confidently look to Dr. Loring for better support and recognition for the next four years than we have enjoyed in the past. A long step has already been taken within the last few months, in the formation of a Veterinary Bureau, and every one knows the good that this has already done. We have no doubt that the new departure already inaugurated will be improved by the new Commissioner, and we feel that the day has at last come when thorough veterinary science will receive the full credit to which it is entitled. If a national Veterinary School might ever hope for a chance for permanent existence, Dr. Loring will be the man to bring it to a final realization.

MONTHLY REPORT ON CROPS AND LIVE STOCK.

We have received from the Department of Agriculture the April "Report upon the Condition of Crops and Live Stock." It occurred to us at first that by means of these monthly reports upon the diseases of animals in all the different States, a very valuable tabular arrangement of these diseases, and their exact locality, could be regularly laid before the readers of the Review, thus enabling members of the profession to obtain possession of reliable information as to the existence, locality, and extent of the various maladies affecting our stock.

Upon a more careful reading, however, we regret to find that the information given by the many correspondents is not sufficiently definite nor accurate to be of any considerable value to our readers.

If we may be allowed to make a suggestion, we would strongly urge upon the Commissioner of Agriculture, the propriety, where practicable, of having reports from the leading veterinarians of the different States as to the nature and extent of prevailing diseases; giving special attention to enzootics or epizootics.

If this can be done, and if members of the profession will interest themselves in the matter, we fail to see any reason why these "Reports" cannot be made of much practical value. It is a step in the right direction, and the Department of Agriculture merits not only our thanks, but also our assistance.

PATHOLOGICAL PHYSIOLOGY.

CHARBON AND THE GERM THEORY OF DISEASE.

By D. E. SALMON, D.V.M.*

I.

The study of contagious diseases is to-day the most important work attracting the attention of scientific men; for not only is the loss of human life from them enormous, but the loss of property by their ravages among our live-stock, and the necessary obstruction of commerce is becoming a matter for the most serious consideration.

Until the last few years the contagious plagues of men and animals have been shrouded with the most impenetrable mystery, to be explained only as punishments sent or allowed by an angry God; and when the black plague destroyed twenty-five millions of people in Europe at a single invasion, or when it devastated such great cities as London, there were few, if any, who imagined it possible for medical science to combat these terrible scourges with any hope of success. But quarantines have already done much, and it is only in exceptional instances that the ad-

*From *The American Monthly Microscopical Journal*, April, 1881

vance of exotic pests, like cholera, yellow fever or the plague, causes any serious alarm.

Notwithstanding this, however, we have among us a number of contagious diseases, from which the country is never entirely free, which cause far greater loss of human and animal life than the majority of people ever imagine. There is small-pox, now robbed of many of its terrors by a general system of vaccination; scarlatina, which is often responsible for ten per cent. of the annual deaths in entire States; diphtheria, which causes an equal mortality; typhoid and puerperal fevers, measles, whooping-cough, syphilis, pyæmia and septicæmia, all of which help to swell the mortality lists. Then as affecting animals, and communicable from them to man, there are such horrible and fatal maladies as charbon, rabies, glanders, and, overshadowing all other plagues in importance, tuberculosis. Finally, as affecting and causing immense losses among animals, we have pleuro-pneumonia (bovine), rinderpest, Texan fever, swine-plague and fowl-cholera. Not less than one-seventh of our people die from tuberculosis alone, or, in the United States, one hundred and twenty-five thousand annually; and if we add the losses from other zymotic diseases, we will double this number, and have in all a mortality approaching that caused by the late civil war.

With this introduction to indicate the importance of the most thorough knowledge of these diseases, I shall enter upon a discussion of the germ theory as applied to charbon, in the hope of keeping my readers interested by the magnitude of the subject, even if I fail to present my views in an attractive style.

Before 1876, we were totally without satisfactory evidence in regard to the nature of the virus of any zymotic disease, but Koch's investigation of charbon, published in that year, made it so clear that this malady was due to bacterium, called the *Bacillus anthracis*, that the germ or bacteria theory of contagion received a new impetus, which has done much for the elucidation of the whole question. There have always been doubters, however, particularly among English-speaking people, most of whom have been unable to follow the investigations as closely as is necessary to reach sound conclusions; and now, when Greenfield

has shown that the twelfth cultivation of the *Bacillus anthracis* no longer produces disease, though its morphological characteristics remain the same, there is a renewed tendency to doubt the connection of this organism with the contagium. It is not uncommon to see such doubts expressed in very strong terms in medical and scientific periodicals, and, if I am not mistaken, a similar tendency has been shown even in the editorials of this *Journal*. Only a few days ago I heard a prominent medical man, in one of our large cities, offer a challenge to the believers in the germ theory, to discuss the reasons for their views in regard to any disease. It seems opportune, therefore, to present the evidences for the faith that is within us, so that all may see that we have a foundation clearly and firmly established. With this view I take up the disease known as charbon (anthrax, malignant pustule), because it has been more thoroughly investigated than any other contagious disease.

Since about the year 1850, the presence of rod-like bodies has been admitted to exist in the blood of the great majority of cases of charbon. By some they were regarded as crystals, but by others they are described as a form of bacterium, called by Davaine, *Bacteridia*, and by Cohn, *Bacillus anthracis*. Koch was the first to show that after the death of the animal, or when removed from the body before death, if surrounded by certain conditions of temperature, etc., these rods increased in length, and there were formed within them bright, refringent granules. These granules were afterwards liberated by the disintegration of the filaments, and then existed in an isolated condition. Finally the isolated granules, when placed in a fresh cultivation liquid—like the aqueous humor—sprouted and formed rods such as were originally present in the blood of the sick animal; the rods would again form filaments, and then break down into granules as before. The granules were, consequently, resting-spores, while the rods were the actively vegetating condition of the organism; the former were comparatively dormant and might be likened to a grain of corn, which, as we well know, retains its vitality though exposed to great extremes of temperature, though withdrawn from the influence of the sun and air, and

even germinates after passing through the entire digestive tract of a large animal like the ox, or after having been buried in fermenting manure for a considerable time. The rods, on the other hand, show an active form of life, and may be compared to the growing maize plant, which is so easily destroyed by frost or drought, and to the existence of which the sun and air are so necessary. That is to say, a spore or seed retains its vitality, and is capable of growth and reproduction after having been exposed to conditions which would assuredly destroy the life of the growing plant or fungus. I ask the closest attention to this point, because it is from this fact that I hope to convince my readers of the connection between the *Bacillus anthracis* and the contagium of charbon. It is the line of argument originally used by Koch, and to me it seems to be a perfect demonstration.

By the cultivation of this organism on growing slides, it was found that it could not form spores unless the atmospheric air was freely admitted; it also required for this purpose a temperature above 12° (53.6° F.) If the conditions of temperature, ventilation and concentration of nourishment were such that spores could not be formed, the rods perished in a few days. Now, it is a most interesting question to know if the activity of anthrax virus disappears with the death of the rods when spores are not formed, and if it is preserved indefinitely after the formation of such spores; and this question is doubly interesting because the conditions which affect the death of the rods before spore-formation are such as will preserve unstable chemical compounds. For instance, such a chemical substance is best preserved by cold and protection from atmospheric oxygen, as well as by drying; but these conditions prevent the formation of bacillus spore, and, hence, lead to the death of the organism in a very short time.

If, therefore, the activity of fresh charbon blood (which only contains rods) is lost in a few days when exposed to a low temperature, if it is similarly lost when hermetically sealed in glass tubes, or quickly dried, especially if the loss of activity corresponds with the death of the rods as determined by microscopical observation and cultivation-experiments, we have good evidence that this activity is due to the *Bacillus*. If we can go beyond

this and prove that, when the spores are once formed, the activity of the virus is retained indefinitely though exposed to cold, drying, putrefaction, or when hermetically sealed, then, I maintain, we have a demonstration that the *Bacillus anthracis* is the essential cause of charbon, and that the disease is due to no other agency.

The following observations are presented as deciding the question :

1. Blood and pieces of spleen, or lymphatic glands, if dried as soon as possible after the death of the animal, soon lose their activity—the smaller particles in twelve or thirty hours, and all within five weeks cultivation. When their inactivity is proved by inoculation, experiments show that the *Bacillus* has perished.

2. Such pieces of spleen, or gland, which have been dried slowly in a warm room, may retain their virulence for certainly four years. These are found to contain spores which may be cultivated and which grow into filaments that again form spores.

3. If a bottle or test-tube is filled with charbon blood, tightly corked, and placed in an incubator at 35°, it very soon has an extremely disagreeable odor of putrefaction, and within twenty-four hours the rods have disappeared, and the fluid is no longer capable of producing the disease when inoculated. This is evidently due to the absorption of the available oxygen by the septic bacteria, as may be rendered clear by the next two paragraphs.

4. If a drop of such charbon blood is placed on a slide and covered, and the cover cemented air-tight, the rods grow until the oxygen is exhausted, as shown by the spectroscope. They then remain stationary, and in a few days become granular and disintegrate without forming spores. Such blood is no longer capable of producing charbon

5. If the charbon blood be placed in a watch-glass where there is free access of air, and then kept in an incubator at the proper temperature, the putrefaction goes on as before, and swarms of micrococci and bacteria appear. The development of the *Bacillus anthracis* is accomplished, however, as though no other organisms were present, the spores are formed and sink to the bottom, and inoculations produce disease for a long time afterward (at least twelve weeks, as shown by experiment).

6. When substances containing the *Bacillus* rods alone are somewhat diluted with distilled or well-water, the development of the rods is not stopped; but if the dilution is excessive, the organism is soon destroyed, and after thirty hours, inoculation fails to produce the disease. That is, the actively growing organism requires a certain concentration of the nutritive fluid in order to accomplish the spore-formation.

7. If flakes containing spores are taken from the watch-glass (paragraph 5 above), containing putrid but still virulent blood, and placed in a test-tube full of distilled water, the virulence is not destroyed, but is retained for weeks unchanged.

8. Such flakes may also be dried, and after a certain time moistened with water and again dried, and this repeated indefinitely without destruction of virulence.

9. A watch-glass of fresh charbon blood placed in a room at 8° (46.4° F.) remains virulent for only three days. The rods at this time have not formed spores and show the granular, disintegrating appearance which indicates their death.

Here, then, we have a series of facts which show the connection between the virulence of the blood and the presence of the *Bacillus anthracis*. A single fact of this kind might indeed be called a coincidence, but even two such facts would, from the nature of the case, afford a strong probability of the virus being identical with the organism; but when it comes to a set of nine facts, each of which taken alone would be a remarkable confirmation, it seems to me that, as scientific men, we must accept them as a demonstration. If 45° destroys the virus before spores have formed, but has no effect upon it afterwards; if diluting the virus largely with water destroys its power before spores have formed, but has no effect upon it afterwards; if hermetically-sealing destroys the virus before the spores have formed, but is without effect after such spore-formation; if putrefaction destroys the virus when there is not sufficient access of air for the formation of spores, but has no effect under opposite conditions; if, in short, the preservation of the virus for any considerable time only occurs when the conditions are such that resting-spores form in the *Bacillus* rods, then, I have no hesitation in accepting it as a fixed fact that charbon is

caused by the *Bacillus anthracis*, and that the contagium, or virus, consists of this alone.

None of the later investigators, so far as I am aware, have published a single experiment to show that the above facts, observed by Koch,* were in any degree doubtful or unreliable; on the contrary, they have been confirmed in a remarkable manner by Cohn, Pasteur, Toussaint, Greenfield, Buchner and others.

In this article I have purposely avoided any reference to those observations which, it is asserted, conflict with the conclusion that charbon is caused by this bacterium. It is simply my object, at present, to make it clear that the organism and the virus are one and the same thing, and I believe that any unprejudiced scientific man must accept this conclusion as necessarily following from the above facts. At another time I may take up the observations which are believed by some to conflict with this view.

UPON THE VIRULENT CONDITION OF THE FŒTUS IN THE EWE, DEAD FROM SYMPTOMATIC ANTHRAX.

BY M. M. ARLOING, CONERIN AND THOMAS.

From the experiments of Davaine, it is known that upon the female affected with Sang de Rate, the infectious agent does not reach the fœtus.

What takes place in the case where the female is affected with symptomatic anthrax? The authors have found on this point, a new difference to add to those that they have already observed between the two diseases.

Indeed, it is shown by the observations they have gathered, that the young animal is affected *in utero*, with symptomatic anthrax, with muscular infractus, œdema, virulent blood, and microbes; in other words, with the lesions observed in adults.—*Gazette Medicale*.

* Dr. Koch, Die Aetiologie der Milzbrand-Krankheit, begründet auf die Entwicklungsgeschichte des *Bacillus Anthracis*. *Beiträge zur Biologie der Pflanzen*. 2nd Band, 2nd Heft. Breslau, 1876.

HOSPITAL RECORDS.

RENAL ABSCESS—FOLLOWED BY MANIFESTATIONS OF FARCY AND GLANDERS.

BY M. BUNKER, D.V.S.

March 24th, 1881, Dr. S. S. Field sent to the hospital of the American Veterinary College a black gelding, 8 years old, 15 hands 3 inches high, with the following history:

The horse had been in the possession of his present owner for several months, and during that time there had been a discharge of a purulent fluid from the inside of the left thigh, close to the inguinal region.

Otherwise, his health was good, and he had been doing his work up to the date named. The appetite and general functions were normal.

On the 26th he was thrown down and placed on his back for examination. The inferior opening of a fistulous track was found on the left side, on the inside of the thigh, slightly forward, about the point of separation of the sartorius and gracilis muscles.

A long probe was inserted into the opening, and as the track was quite large, a catheter was afterwards used in its place, and inserted to the depth of about two feet. On the hand being introduced into the rectum, and passed forward into the lumbar region, the catheter could be felt, and on being traced to its end, the track was found to end in a round, well-defined soft body, resting about on the median line. When the catheter was withdrawn, a small amount of pus came with it.

When the horse was let loose and allowed to get up, a further rectal examination was made, but no marked difference as to the general character of the tumor could be observed, except that it had moved from the median line slightly to the left, and was more dependent.

A diagnosis of abscess of the psoas muscle was made, with a very unfavorable prognosis, the means and chances of treatment being too small to justify surgical interference. Aspiration being too uncertain, incision through the flank sure to prove fatal, and a puncture with drainage tube of more than doubtful

result, the owner decided to have nothing done to him, and the horse was removed from the hospital and lost sight of for a number of days.

On the 10th of April he was found abandoned in the street, in front of a police station, and was again kindly sent to the hospital by Dr. Fieh., who had received him from the police authorities.

The animal was admitted late in the evening, and found the next morning in the following condition:

Coat dull and staring; mucous membranes slightly injected; pulse 48, soft and weak; respiration 14; temperature 103° ; was lame on the off fore leg, which was swollen up to the elbow; the lymphatics both on the inside and outside of the leg swollen; on the inside, in three or four places, are chancroid-like ulcerations, from which a sanious discharge flows on pressure. The lymphatics of the off hind leg are swollen, with here and there small eruptions on the skin. Those of the near hind leg are also swollen and nodulated. On the neck and abdomen the lymphatic glands are more or less engorged.

The discharge from the abscess on the inside of the near hind leg is the same as when last seen. A rectal examination showed the same condition of the tumor as before. Appetite good. All the functions normal.

April 12th: Pulse 60, respiration 30, temperature 102° ; about same conditions, with a slight discharge from the left nostril. The off hock was enormously swollen.

April 13th: Temperature slightly raised; otherwise in about the same condition. On the left side of the thorax, subcrepitant rales were found, with diminution of respiratory murmur on the lower part of the left lung, and slight dullness on percussion. There were a few drops of blood around the nostrils.

April 14th: Maxillary glands are swollen; ulcerations on the left side of the septum nasi. The horse was destroyed.

Post mortem.—The horse was placed on his back, and an incision made on the median line, the abdomen and thorax being both opened.

The intestines were in a normal condition. The internal

organs, when removed, were healthy. The lungs highly congested, free from glanderous deposits; heart, liver and spleen free from disease.

The right kidney was very much enlarged, somewhat congested and softened, and weighed 36 ounces.

In the left lumbar region, at the location of the left kidney, was a large elongated tumor, from the posterior portion of which extended the fistulous track.

On dissection, the tumour was found to be resting on the lumbar aponeurosis, and when separated from the surrounding tissue was found to be entirely external to the psoas muscles, but involving the left kidney in its mass. It measured in length 13 inches, and 19 in circumference.

On being placed on a table, the tumour was soft and fluctuating, and when opened allowed the escape of 13 ounces of thick pus, mixed with thick masses, all contained in a large unilocular cavity, irregular in shape. The smell of this discharge was very offensive. The cavity involved the parenchyma of the kidney, in its two posterior thirds, the organ being surrounded by a hard, thick coat of organized exudation.

There was no opening from the sac into the pelvis of the kidney. The anterior portion of the kidney was of its normal color, and terminated in a heart-shaped end.

The septum nasi presented a few ulcerative patches; the mucous membrane was rosy in color. The turbinated bone had also a few abrasions, ulcer-like in appearance.

The horse was sold at public auction, at one of the most respectable places in the city, perfectly healthy on the Friday, and found abandoned the following Sunday, because of a fear that he had farcy.

Was this an attack of acute farcy, or glanders, or a case of pyemia, due to the absorption of the pus from the abscesses?

CONCUSSION OF THE BRAIN, COMPLICATED WITH FRACTURE OF THE OCCIPITAL BONE.

BY R. HARRISON, D.V.S.

Late on the evening of May 13th a brown mare, eight years old, about $15\frac{1}{2}$ hands high, was brought to the hospital of the American Veterinary College in the ambulance. The owner said she was being brought home from the blacksmith's shop, and, when ridden under the Elevated Railroad, became frightened by a passing train, and fell heavily on her near hip and over on her head. She struggled violently, but was not able to get up. When admitted, common sensation and voluntary motion was entirely lost, so that when pricked with the point of a knife she gave no indication of pain. Her temperature was $101\frac{3}{8}^{\circ}$; pulse 40, very full, and respiration 12, deep and stertorous. The pupils of both eyes were fixedly dilated and would not respond to the application of light; the left eye was nearly closed by an œdematous swelling caused by a violent bruise received near it; there was slight epistaxis from both nostrils, principally from the left; the tongue and some of the facial muscles were paralyzed; the surface of the body was covered with cold perspiration, and there were muscular tremors of the extremities; at irregular intervals she would struggle violently.

The diagnosis was made of concussion of the brain, and it was thought that a fracture probably existed at the base of the brain. A fatal prognosis was given.

Treatment.—Her rectum and bladder were emptied, a full dose of aloes given, and cold water irrigation continuously during the night was applied to the head.

May 14th, 8 A. M.—Was placed in a box-stall and confined so she would not knock herself to pieces. The temperature was 101° ; pulse the same as the evening before; respiration more stertorous. Remained unconscious during the day and died during the night.

Post mortem.—The temporal region where she had been bruised by the fall was œdematous and infiltrated. At the base of the brain outside the cranial cavity was a clot of blood as big as a man's fist. The occipital bone was fractured on the left side near

the occipito spheno-temporal hiatus. The cerebrum was congested and on section, the puncta vasculosa stained its substance; the membranes were intensely congested, especially at the base of the brain; the cerebellum was apparently normal.

LACERATED WOUND OF THE ANTERIOR CRURAL REGION—GAN-
GRENE—SEPTICEMIC POISONING—DEATH.

BY THE SAME.

April 14th.—A brown mare, 12 years old, 16 hands high, belonging to a dealer in this city, had just been landed from the cars, and was being taken to the owner's stable, when she was run into by a wagon. The hub of the wheel struck her on the near hind leg and inflicted a severe lacerated wound. She was brought immediately to the college hospital, and was found to have a large lacerated wound at the anterior crural region, extending downward nine inches, parallel to the fibres of the fascia lata, and at right angles backward and slightly downward, six inches. The skin was torn away from the muscular tissue underneath, forming a V shaped flap; the muscular tissue of the fascia lata was nearly severed; about three-quarters of a pound was hanging down, almost separated from the substance of the muscle.

Treatment.—The edges of the wound were trimmed, the hanging portions of muscle amputated, the lacerated pieces of aponeurosis clipped away, the wound thoroughly cleansed and sewed up by interrupted sutures in the longitudinal wound, while the other was closed by quill sutures. Oakum saturated with carbolic solution was used as a dressing. She was then placed in a stall and confined so she could not lie down or move about.

April 15th.—The animal is off her feed, shows much pain in the injured limb and a disinclination to move, and when made to do so shows great stiffness. There was the appearance of supuration from the wound. Strips of linen loaded with collodion were arranged so as to reinforce the interrupted sutures, the wound was cleaned and dressed with oakum saturated with alcohol, and the use of the anti-septic spray was continued at intervals during the day.

16th and 17th.—During the 16th and 17th the wound has a

healthier appearance, the discharge, however, was more abundant and of a very foetid odor, due to the clearing off of the wound and the sloughing of much aponeurotic tissue. The general condition of the animal was not improved, her appetite remained capricious, and the reacting fever showed itself, the temperature being $103\frac{2}{3}^{\circ}$, pulse 72 and weak, and respiration 24. The spray was used every two hours during the day and alcoholic spirits were given internally.

18th and 19th.—Temp. 104° , pulse 72, resp. 28. Eats a few carrots and a little hay. The wound was dressed as before and cold water irrigation containing chloride of calx was applied both day and night.

20th.—Eats a little better, but general condition about the same. A counter-opening was made on the anterior tibial region and a seton run through, to allow the free escape of pus and water which had infiltrated into the cellular tissue.

21st–27th.—On the 21st, another counter-opening was made six inches below the first, and seton applied.

The discharge kept on increasing and a great quantity of aponeurotic tissue sloughed away, which was removed through the counter-opening which had been made. The mare began to emaciate rapidly and would eat nothing but hay. Symptoms of organic poisoning set in and on the 27th her left lung was found to be affected with pneumonia. Her temperature was 105° , pulse 60, very weak, respiration 36. Stimulants consisting of carb. ammonia 3 ij, and pulv. gerstran rad. 3 i, made into a ball, were ordered every four hours. The irrigation was stopped and the parts were dressed with plain oakum dressing and a disinfecting powder.

28th.—She died on the afternoon of the 28th, and on post mortem examination lesions of pneumonia were noted in the lower third of the left lung. Both lungs were congested and showed metastatic abscesses. The entire outside of the injured extremity from the gluteal region to the hock was gangrenous and denuded of its aponeurotic envelopes. The skin on the outside of the leg was ready to slough; the external angle of the ilium was necrosed, and the attachments of the muscles were loosened.

REPORTS OF CASES.

RUPTURE OF THE STOMACH FROM IMPACTION WITH DIRT, Etc.

BY A. A. HOLCOMBE, D.V.S.

The subject of this report was a sixteen-year-old mule that had worked in a six-mule-team at Fort Leavenworth depot during the past twelve years. Of late he had become quite subject to colics, having been in the hospital for treatment some five or six times during the past nine months. The attacks were comparatively mild, and no doubt depended on an imperfect mastication of the food. Two or three doses of colic mixture were usually sufficient to effect relief.

On April 10 he suffered from a severe attack of indigestion, remaining in the hospital for three days. On the 14th he was turned into the corral for a few days' rest, but getting kicked during the day, he was not returned until the lameness had been removed, which was on the 17th. Nothing amiss was noticed with him until the morning of the 19th, when he was found in the corral suffering from intense abdominal pain. He was immediately put under treatment for indigestion, receiving an eight dram dose of Barbadoes aloes, with occasional doses of tr. of opium and aromatic spts. of ammonia. On the 20th he purged moderately, but still had slight colicky pains at infrequent intervals. About nine o'clock on the morning of the 21st severe spasms set in and death followed in a few minutes. Opportunity was not afforded for making a post mortem examination until the next morning, when the following lesions were found:

The abdomen was greatly distended with gas, which escaped, with three or four gallons of fluid, when the cavity was opened. Mixed with this fluid, at the most dependent part of the cavity, was a quantity of ingesta that had escaped from the right cul-de-sac of the stomach. When the stomach was reached, it was found distended to its utmost and unusually heavy. Removing it, and making an incision through its coats so as to expose its whole contents, they were found to consist as follows:

Almost the entire surface of the mass consisted of dirt or mud,

containing a few grains and pieces of corn. Within this layer, in the right cul-de-sac, was a sufficient amount of corn and oats, imperfectly masticated, to completely distend that part of the organ. The left cul-de-sac was equally distended with a large mass of coarse hay, scarcely masticated at all, and a small quantity of oats and corn.

Collecting the dirt in a single heap, I estimated the weight at 25 or 30 pounds. On opening the small intestines, they were found to contain little else than very thin mud. The large intestines contained a small amount of fœces and coarse ingesta, with a considerable quantity of thin mud.

Evidently the rupture in the coats of the stomach resulted from the swelling of the oats and corn, which had been eaten in the morning, and which could not digest owing to the presence of the large mass of dirt.

FORT LEAVENWORTH, Kans., April 25, 1881.

INDURATION OF THE CERVIX UTERI.

BY W. F. DERR, V.S.

On March 1st I was called by Mr. Collins of this city to see a cow that was unwell.

Arriving at his place, I found the patient in a recumbent position, very much debilitated and unable to rise, and with eversion of the vagina, which the owner thought was the head of the calf, and had a so-called cow doctor try and deliver her. I, however, informed the owner that it was the vagina. He told me the time of delivery was not up for a month yet. I tried to raise the cow, but found there was an inability for her to do so without assistance. I administered an anodyne drench, as the throes of the animal were severe, and, being weak, I wanted to save her all unnecessary pain. I reduced the vagina and applied a truss, raised the posterior extremities, and gave a laxative to be followed with tonics and stimulants.

In the evening I was called back, and found the animal down and in terrible pain. I administered an anodyne drench of chloral

hydrate $\frac{3}{4}$ ss. dissolved in a pint of water, which had the desired effect in a few minutes.

I then made a more close inquiry into the history of the case, and was told by Mrs. Collins that the time of delivery was up within a few days. I made an examination per vagina, and found the os perfectly contracted so that it was impossible for me to insert my finger. The cervix felt hard, like cartilage, and felt to me like the neck of a bottle. I applied solid extract belladonna around the cervix and waited about four hours and found the os had dilated so that, by rotatory motion, I could introduce my finger. I kept on manipulating the parts, but had no success in getting the parts to dilate. There seemed to be a perfect stricture of the cervix. I made up my mind to try the effects of warm fomentations. I introduced the nozzle of Reid's pump into the vagina, and kept up a stream of blood-warm water for five hours, but received no benefit from it only to soothe the irritated parts. I now made up my mind to operate and divide the stricture, which I did as follows: I passed a concealed bistoury ten inches long into the os and made a superior and inferior incision into the cervix of about an inch and a half, then withdrew the instrument and introduced my hand, and, by gently manipulating the parts, they dilated in a short time. I ruptured the foetal membranes, and, allowing the liquor amnio to escape, found the foetus in a proper position, and, by applying gentle traction to the legs, the thoes of the animal being weak, delivery was soon effected. I introduced my hand to remove the foetal membranes and found another calf, which I removed in the ordinary way. There was some hemorrhage from the incisions made in the cervix, but nothing to speak of. Both calves and cow made a good recovery.

I had another case similar to this, the animal being very poor and debilitated, on April 16th; tried the same treatment and failed, but by operating on the cervix by division of the stricture I had good success in saving the cow and calf.

N. B.—Would ask the editor if the debilitated condition these cows were in had anything to do with the cartilaginous condition of the cervix, as both cows had no trouble in parturition before. [It is not likely.—Ed.]

REVIEW.

DISEASES OF THE OX.

BY J. H. STEEL, M.R.C.V.S.

The appearance of a new work on cattle pathology, (*Diseases of the Ox*, by J. H. Steel, M.R.C.V.S.,) is indicative of the rapid progress that veterinary science is making in this direction.

In America, within the recollection of some of the older members of the profession, the diseases of cattle were but imperfectly understood, and it was seldom thought necessary or economical to employ the veterinarian in treating this class of our domestic animals. All diseases of cattle were treated by the cow-doctors or cow-leeches, as they were called. Not infrequently these animals when diseased were left entirely to nature.

The present volume is timely and fills a much needed and widely felt want. The general character of the work is such as to commend it to the busy practitioner as well as to the student.

In style it is terse, vigorous and precise. The author deserves special praise for omitting lengthy discussions of disputed points, as well also as in referring his readers to works that treat of special diseases, rather than to encumber a work of this description with all the details that properly belong to separate and more or less distinct subjects.

In point of scientific exactness the work is fully abreast with the times. If there is one feature more than all others that merits particular notice it is the absence of formulae receipts and prescriptions. It is indeed a *relief* to find works of this kind that have not encouraged empiricism by the insertion of numerous prescriptions.

Of the internal arrangement of the book some comment is needed. The introduction, covering almost ninety pages, occupies too much space. This has necessarily rendered subsequent parts of the work too concise. A book written expressly for the veterinary profession need scarcely be burdened by such a lengthy explanation of technicalities, already supposed to be fully understood. The section comprising bovine therapeutics and *Materia Medica* presents a convenient tabular arrangement of the more common drugs with their actions and uses.

The division of the subject matter into chapters, comprising diseases of the blood (non-specific hæmal affections, specific hæmal affections and poisons); diseases of the circulatory system; diseases of the digestive system, &c., &c., not only facilitates the study of any one particular disease, but also brings distinctly before the mind of the reader the differential characters of the various diseases affecting the same system or group of organs. "Parasites and parasitismus," is of much value to the practitioner in enabling him to recognize the most common of the parasites that infest the bovine family. The engravings very materially enhance the value of the work.

Had most of the space devoted to the introduction been utilized in giving more comprehensive descriptions of the various diseases, the work would not then be open, as it now is, to the criticism of seeming to slight some very important subjects. "Diseases of the Ox" merits a prominent place in the library of every veterinarian and veterinary student.

SPECIAL REPORT NO. 31.

Special Report No. 31 of the Department of Agriculture, being the third of Dr. C. P. Lyman on Contagious Pleuro-Pneumonia, reached us some time ago. We were in hopes that we could obtain the same in full from the Department, and thus give our readers an opportunity to read it, as we had been given to understand that we could obtain the volume. As we were going to press we received notice stating that we cannot have the reports for our own distribution, but that a copy can be had from Washington on application.

The report is made to discuss the points of inquiry relating to the investigations made by the Doctor when in England, where he had been commissioned last year for the detection of contagious pleuro-pneumonia in American cattle sent abroad; also to present the report of Dr. W. T. Whitney, the microscopist, who examined portions of diseased lungs brought home from Liverpool, and to draw reasonable deductions from the facts presented, giving first the history of the animals from which the condemned lungs were obtained. The microscopic appearances of all are carefully

described and illustrated by several handsomely made plates, with concluding remarks from Dr. Whitney, which seem to the author of the report, and, we believe, will be conceded by all, to prove that the lungs condemned in England in the cases referred to, were *not affected with pleuro-pneumonia contagiosa*, but with chronic *interstitial pneumonia* with peribronchitis, with necrosis, and the formation of small cavities at and within the lung tissue proper, with evidences that tuberculosis played a more or less prominent part in the ætiology of these changes.

The report is quite strong in its argument, and throws much light on the question then in doubt, of the existence of the lung plague in these slaughtered American steers.

AMERICAN AGRICULTURAL ASSOCIATION.

The Journal of this Association has recently been published, as the first number, to be continued at intervals. It contains three hundred pages of excellent articles from several contributors. Amongst those most interesting to veterinarians is that of Prof. Law on the Bovine Lung Plague—a subject which the author has already written much about, but on which, however, he always finds material to treat with the hand of a master of his subject. The Journal can be had from the Secretary, M. J. Reall, 127 Water St., N. Y. Price 75 cents.

CORRESPONDENCE.

CHLORAL HYDRATE AS AN ANÆSTHETIC.

Mr. Editor :

Understanding that there are some doubts thrown upon the correctness of the views expressed and results obtained by the use of chloral hydrate as an anæsthetic in veterinary practice by our compeer, G. H. Peabody, D.V.S. of Providence, R. I., and which were given to the public for the first time through a previous issue of the REVIEW, I take the liberty to briefly refer to two instances in my own practice, where its use was resorted to and the results obtained. Having occasion to use the actual cautery upon an old

trotter that had passed into the twenties without any loss of his former vim and spirit, and who showed more or less symptoms of fragilitis of the osseous system, I feared the risk of a fracture of the vertebral column from casting, and therefore ordered his feed withheld, and at the expiration of thirty-six hours gave nine drachms of the crystals of chloral hydrate in capsules. In an hour afterward it was with considerable difficulty, with one man at his head and one on each side, that he could be moved a distance of twenty feet, where without restraint of any kind, the coronet of one hind foot was thoroughly fired, without any indications of pain or even so much as lifting the foot from the floor. The operation consumed about twenty-five minutes, when he was returned to his stall, and in reaching up to the rack for hay, lost his balance and would have fallen but for the three men who were supporting him. He seemed comfortable and contented, and would eat hay when placed within his reach. The pulse, taken at that time, showed thirty, with soft respiration, and increased to twenty without labor, and, except the loss of voluntary muscular action, he seemed to suffer no inconvenience. Being pressed for time, we did not wait to see how the case would terminate, but instructed the groom to keep a watch upon him until the effects of the drug had passed off. Upon calling the next day, we found him comfortable, and were informed by the groom that the intoxication began to pass off in an hour after our departure, and in one hour afterward he showed no signs of the ordeal through which he had so recently passed.

No. 2 was a valuable eighteen-months-old Alderney bull, who in fighting with another animal sustained a fracture of the inferior third of the tibia. The owner being desirous of saving him, if possible, we endeavored to apply a cast, but owing to his extreme restlessness failed to do the work satisfactorily. We accordingly administered seven drachms of chloral hydrate, and in twenty-five minutes he was stretched out, and except for his stertorous breathing, one would suppose lifeless. We succeeded in the work to our entire satisfaction. It occupied about thirty minutes. We waited another half hour, when he raised his head, looked around and began to eat some hay that lay within his

reach. The next day he showed no ill effects from the use of the drug. We have practiced the use of chloral in a number of cases before, but not with the same degree of success. The conclusion we have arrived at is that it should always be given in large doses, upon an empty stomach, and in the equine a full hour should intervene before the animal is approached, as the excitement caused by manipulation tends to counteract its anæsthetic effect. Our experience is that the transparent crystals are preferable to the opaque cakes: both are upon the market, and one can be obtained as readily as the other.

Yours truly,

J. C. CORLIES, D.V.S.

STATE VETERINARIAN.

DETROIT, May 12th, 1881.

Editor American Veterinary Review :

SIR:—Having given some attention to a subject to which an article is devoted, under the title "State Veterinarians" in the May number of the REVIEW, I beg to offer a few remarks in relation to it. I may begin by saying that in the State of Michigan the laws in relation to the diseases of animals are of a very crude and defective character—so much so that they frequently conflict with the Constitution of the United States, and consequently are, to a certain extent, inoperative. The laws of this State on this subject have evidently been framed by men who had little if any knowledge of the evils they were intended to remove.

Having been appointed one of three State Commissioners to prevent the spread of contagious diseases among animals in Michigan, I found that I was unable to prevent the conveyance of Texan cattle into the State, though the State law prohibits this being done, between the first day of March and the first day of November. The Commissioners afterwards had a meeting at which the defective condition of the laws was discussed, and a resolution was passed by the Commissioners directing me to draw up a report which should contain drafts of a series of laws to prevent the spread of contagious diseases among animals in Michigan, as well as to prevent the sale of diseased meat and unwholesome milk.

In doing this work I have been struck with the difficulty which arises from the laws of one State being different from those of another. To accomplish all that is possible in the way of preventing the spread of contagious diseases, the laws of the different States should be alike. It is very obvious that if one State is very remiss in preventing the spread of contagious diseases, another State which pursues quite an opposite policy will suffer from the "laissez-aller" policy of its neighbor.

Can the laws of the different States be rendered alike in this respect? I rather think that the laws of the different States cannot be harmonized unless the Constitution of the United States is altered. To those who would oppose such a measure I would say that the Constitution of the United States was adapted for a small territory and three millions of people, but it must be modified when you have a population of over forty millions and an immense territory.

I do not think that a National Veterinary Department should be a mere appendage to the National Board of Health or of the Department of Agriculture. The functions which such a Department has to discharge are important enough to call for a separate organization. Such a department, however, could not be of much service until the action of the different States is harmonized, and such a change is not unlikely to meet with considerable opposition. The losses which this country must suffer by delaying to make such a change will ultimately, as it appears to me, lead to its being carried out. Yours, etc.,

A. J. MURRAY, V. S.,

State Commissioner.

N.B.—The above is sent to the REVIEW under the impression that the question treated of is of considerable importance to veterinarians.—A. J. M.]

A CROSS-EYED MULE.

Editor Review:

In the government corral at this place is a team mule with double internal permanent strabismus.

It being the first case of strabismus I have ever seen in the mule, I beg to report it for the REVIEW. Are such cases often seen? Or is the condition extremely rare?

A. A. HOLCOMBE, D.V.S.

FT. LEAVENWORTH, KANS., May 17, '81.

SUNDRIES.

OLEATE OF ZINC IN ECZEMA.—Dr. Sawyer records his testimony in favor of the efficacy of the ointment of oleate of zinc in the treatment of eczema—having used the remedy for nearly six months, in a large number of cases, arising in hospital and private practice. He has always used the oleate of zinc made into an ointment, either with vaseline or lard. Vaseline is preferable to lard, because it is not so liable to changes.—*Journal of Materia Medica*.

† TRICHINOSIS.—M. Bouley on the occasion of the outcry against trichina has examined 600 cases of American pork, and found them free from all disease.

SOCIETY OF AGRICULTURAL SCIENCE.—The annual meeting of this Society will be held at Cincinnati, on the 16th of August. It is hoped that veterinary medicine will be represented.

ANTHRAX IN THE WEST.—Nebraska and Iowa are reported as suffering severe losses amongst cattle. Thousands of animals are said to have died from various forms of anthrax.

CATTLE DISEASE IN NEW HAMPSHIRE.—A cattle disease is reported prevalent in the vicinity of Milford, New Hampshire, from which a number of animals have already died.

MORTALITY AMONGST SHEEP.—Fully one-fourth of the sheep of Montana are said to have perished during the winter. Many owners have lost their entire flocks.

HORSES IN THE UNITED STATES.—A table compiled at Washington from the latest returns, states the number of horses in the United States to be 10,998,700. In Europe there are 31,573,933.

DEATH FROM FRIGHT.—In Rock Island, Ill., a horse unused to the sight of a locomotive, is said to have stopped, trembled and fallen down dead, when one of those engines came into view.

A BIG HORSE.—The Bridgeport *Standard* says that another big horse has arrived for the Barnum London Circuses. The animal is twenty-two hands high, weighs a trifle over 2,800 pounds, and is a perfect monster, being fully a foot higher than the one they have now.

TRICHINA AT THE CHICAGO STOCK YARD.—An examination of 400 pigs, taken at random in the packing houses at the stock yard, Chicago, by Dr. Paten, failed to reveal any trichina. These results, however, are different from any previous one, and the Board of Health contents itself in advising that all pork should be well cooked.—*Medical Record*.

OBITUARY.

DR. E. HERING.

The oldest teacher of veterinary medicine, Dr. E. Hering, late Director of the Stuttgard Veterinary School, died recently at the age of 82 years, from an attack of cerebral congestion, which carried him off in four days.

Known all over Europe by his numerous and important writings, Dr. Hering was honorary member of several medical, veterinary and agricultural societies.

Amongst the numerous works which he wrote, and which are known by most veterinarians, are his *Repertorium der Thierheilkunde*, *Candall's Jahresbericht*, the classical works on special pathology and materia medica, and his *Manual of Operative Veterinary Surgery*, which was translated into the Italian and Russian languages, and lately reached its fourth edition in German.

The news of his death will be regretted by the veterinary profession all over the world.

PROF. CORBYN.

One of the oldest veterinary practitioners of Philadelphia, Prof. Corbyn, died lately at the age of 72. He practiced in that city for a period of forty years, and was connected with the Pennsylvania College of Veterinary Surgeons.

AMERICAN VETERINARY REVIEW,

JULY, 1881.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 91.)

Symptoms.—It is seldom that the symptoms of canker can be observed from the start; slow in its progress, and not surexciting the sensibility of the parts, the disease may progress without manifesting any ill effects, and consequently escape notice by the owner or groom, nothing appearing to call his attention to the affected foot. Thus, in a majority of cases, canker is only discovered after it has been in existence for a considerable period, and when serious alterations have already taken place. It is often at the shoeing shop, when the shoes are changed, that in the laminæ is observed a moisture more or less abundant, giving rise to softening and raising of the hoof. The disease sometimes attacks only one foot, often several feet at a time; at times when one foot is cured, another becomes affected, and the disease thus appears traveling alternately from one foot to another.

Usually the disease begins with the inflammation of the keratogenous membrane which covers the median lacunæ of the plantar cushion; the hoof covering this is softened, raised by a serous

moisture, and once loose, is not renewed, the tissue producing it having lost its function of secreting the horny substance, and now secreting a serous element, which becomes the caseous matter of which we shall speak hereafter.

Sometimes the disease begins by moisture in the hollow of the coronet, by a kind of *grease*, a disease which we shall see to be of the same nature as canker. There is an oedematous swelling, warm, somewhat painful, of the phalangeal region, first serous, then becoming opalescent, which seems to filtrate through the softened, but not yet raised, epidermis. This inflammation, spreading little by little towards the hoof, extends to the plantar keratogenous membrane, and gives rise to an exhalation of the same nature as that of the skin, which produces the separation of the hoof, and the first marks of canker.

Sometimes one may observe at once, a fungoid growth or ficus, formed by an hypertrophy of the tissues underneath; this growth is more or less moist and offensive, bleeding easily, having the aspect of cauliflowers, and protruding through a break of the softened hoof, and forming a thready detritus to be subsequently studied. Commonly, the hoof is more or less loose, and under it there is a caseous matter, greasy, ordinarily of a foetid odor, easily removed by scraping, being non-adherent to the tissue which secretes it. If the parts are well cleaned from this, the velvety tissue of the pyramidal body of the frog appears to be covered with a smooth membrane of a slight whitish color; the external layer then appears formed by a pellucid epidermic covering, showing through its transparency the purplish color of the capillaries underneath. The velvety tissue is diseased, but still retains its functions, which on the contrary are increased but perverted, and instead of secreting a horny substance which adheres to the surface of the keratogenous membrane, produces the caseous matter already referred to. The breaking in the hoof frequently seems small in size. Nevertheless, the alteration of the keratogenous tissue, viz: the substitution for its normal, of a pathological secretion, whose product is this loose caseous matter, is far advanced. There is then an extensive, though a concealed separation of the hoof. One then must not allow himself to be deceived

into supposing it to be a limited diseased process, by the apparent external integrity of the horny box.

The characteristic of canker is its tendency to spread, like cancerous affections. Once manifested in any part of the sub-horny tissues, the special changes which characterize the disease seldom remains circumscribed; on the contrary, they generally extend from that part as a centre, throughout the whole circumference, and little by little, attack slowly but continuously the whole extent of the secreting apparatus, and thus loosen the entire horny box—starting from the median lacunæ, or the glomes of the frog, it extends to the branches and the body of the plantar cushion; then spreads at the side, in the lateral laminæ, from there all round on the velvety tissue, then by degrees reaches the inferior extremity of the podophyllous laminæ and going upwards, reaches the coronary band, the last point, where, in extreme cases, the hoof preserves its adhesions with the tissues which form it. In this condition the diseased process progresses more slowly than between the sole and the velvety tissue, and then it seems to remain stationary; otherwise the dropping of the hoof would be possible.

We have seen that often at the beginning, but especially as the disease progresses, there are growths called *fici*, found principally round the laminæ, the frog and the sole. These are of whitish color, opal, varying in size and in shape; they constitute an irregular mass, formed of those *fici* pressed together; some of these growths have a wide basis, others are somewhat pedunculated; sometimes they are single, tubercular, slightly elevated; at other times elongated bodies, true fibrous bundles. The *fici* are nothing more than the normal villosities of the keratogenous tissue which have become tumefied and hypertrophied, and are found principally where, in the normal state, the villosities of the velvety tissue are themselves more numerous and more developed. Where these vegetations are confluent, as upon the sharp edge of the bone, they are separated from each other by a kind of deep sinuous grooves, filled with the caseous matter secreted by the diseased keratogenous structure. These growths bleed easily and grow rapidly again when excised. Those most developed, and

which seem to form a homogeneous mass, constitute, however, an aggregate of smaller vegetations united in a certain part of their extent, and continued at their bases.

Besides the vegetation of the living tissues, the plantar surface of the foot presents, in old cankers, isolated fasciculi of solid horny substance, of thready appearance, soft, analogous in their form to coarse brushes whose hairs are glued together. These isolated, still adherent, brushes are seen spreading towards the sole; they correspond with parts of the velvety tissue which have maintained their soundness in the midst of the diseased surface, and there continue to secrete healthy hoof. These horny growths are ordinarily multiple, and are of various shapes, often twisted, and give to the plantar surface a peculiar aspect, so much so, that their brushy masses sometimes retain the mud of the streets and are filled at their bases with a black and fœtid substance of an ugly appearance.

When canker has arrived at a very advanced period, it is characterized by the deformity of the whole horny box, whose length and width is considerably increased. The last of these conditions is a sure sign that the disease has spread under the wall of the quarters and of the heels, and has produced the complete separation of the bars from above and below. When percussed, the hoof at the heels gives a dull sound. The excessive length is only an indirect consequence of the disease, and is due to the fact that, so as to keep the animal at work, the walls are spared as much as possible by the blacksmith, so as to avoid the contact of the protruding parts with the ground.

Physiological signs are almost entirely absent in canker. It is a curious fact that the sensibility which is generally highly increased in all affections of the foot, even in chronic diseases, remains always so obscure in canker that animals may be used for a long time without lameness, though the sub-horny tissues have over a large surface become quite unprotected.

Complications.—Very frequently, canker is complicated by a disease of the skin, analogous to it, known as *grease*; a disease which, if not entirely of the same nature, as admitted by Plasse, Megnin, &c., is closely related to it. It is often through this

that canker begins, and very often the two diseases exist together in the same animal, one sometimes following the other, just as canker of one foot follows that of another.

Among the complications of canker, as generally admitted, are some injuries of the plantar cushion: inflammation and necrosis of cartilages, ligaments or tendons, and even caries of the os pedis and ankylosis, which are sometimes observed; however, a close examination of the facts allows us to say that these accidents do not arise under the simple influence of the disease alone, but that they are due to the improper use of sharp instruments, of the actual cautery, and especially of potential cauteries. As La Gueriniere said, the deep lesions of tendons and of the os pedis, which are observed in severe cankers, have no other cause than the action of too powerful dessicatives.

Duration, march, termination.—Canker is an essentially chronic disease, and may be of long continuance, even lasting for years. Still, under this heading there are many variations, whose cause it is difficult to find. There are horses whose disorganization of the hoof is complete after two or three months. There are others where the disease remains stationary for more than a year. We have often seen it remaining limited to one lacuna for months, and all at once assume a rapid evolution of disorganization. We have noticed this principally after the use of sharp instruments.

Generally, animals affected with canker feed well, and for a long time retain a good condition; towards the end, however, they lose flesh and exhibit symptoms of septicohemina, especially if affected with grease. We do not admit that, as advanced by some, canker can give rise to such virulent diseases as glanders and farcy.

Diagnosis.—At the beginning, canker may be confounded with thrushes, and many veterinarians have considered this as the first stage of canker. There is, however, a great difference between the two: first, as to the anatomo-pathological point of view, inasmuch as the pultaceous, foetid secretion is less abundant; that the loosening of the hoof is less, and that there are no fici; and again, especially in the point of view of the treatment, where single cases

of cleansing, with or without dessicatives, easily control it, while canker remains rebellious to them.

Prognosis.—The prognosis varies. Where the animal is young, well fed, and the disease is not too old, it is favorable. Yet it remains uncertain, as often the most benign form may last long and remain rebellious to all treatment. The severity and the extent of the internal lesions cannot be estimated by the alterations or deformities of the hoof, as these appearances are often deceptive. Canker, though considered incurable for a long time, is not absolutely so,—far from it; with rational treatment, properly carried on, it is curable in the majority of cases. There are cases, however, not very rare, where relapses and useless attempts have discouraged the owner as well as the veterinarian, and where it has been more advantageous to destroy the animal rather than to submit him to a long, tiresome, and always expensive treatment.

(To be continued.)

CHARBON AND THE GERM THEORY OF DISEASE.

BY D. E. SALMON, D.V.M.*

II.

At times it has seemed that many scientists were playing fast and loose with the germ theory, in a style not very consistent with the elementary principles of scientific reasoning. On the one hand, the mere presence of bacteria in the blood or other liquids of man or animal affected with a contagious disease, has been accepted as a proof that the disease in question was caused by bacteria; but as such organisms were found in various non-specific affections, and, indeed, were shown to be universally present, and the difficulty of separating the pathogenic from the septic forms and of proving the effect of the former is so great, that there has been a reaction which leads many at present to utterly reject the germ theory. However, such varied opinions should hardly excite surprise in regard to a subject of which so little is known, for there are always some who reach the most positive conclusions from the very slightest evidence.

**American Monthly Microscopical Journal.*

Now, I am convinced that these extreme views must be modified before we arrive at the truth; of themselves, however, they are not evidence either for or against the germ theory. In science a fact must be demonstrated before it can be accepted, and when once properly established, it must remain a fact, no matter what results are attained by other lines of investigation. In other words, facts do not contradict each other, and when they appear to do so, it is only because our knowledge of the subject is superficial. This principle seems to have been neglected, however, by many of those who are discussing the etiology of charbon; and, now, after a demonstration has been made of the pathogenic action of the *Bacillus anthracis*, we are continually being told that this demonstration must go for nothing because results attained through other lines of research appear to some to be inconsistent with this fact.

If these points are unduly insisted upon, it is because it seems necessary to be positive in regard to these fundamental principles; but it is not my intention to disregard other observations or the conclusions which may be reasonably drawn from them. Facts must agree, no matter by whom discovered, and I shall not set the example of suppressing any of them. We will, therefore, consider the observations which are believed by some to conflict with the germ theory as applied to this disease.

1. THE BACILLUS ANTHRACIS IS NOT ALWAYS FOUND IN THE BLOOD OF ANIMALS WHICH HAVE DIED OF ANTHRAX.—Although it is manifest that septicæmia has been frequently confounded with charbon,* I am willing to accept it as a fact that there are some unmistakable cases of charbon in which the *Bacillus anthracis* cannot be found in the blood by direct microscopical observation; and it at once becomes a question whether this fact is in opposition to the conclusion we have reached in regard to the pathogenic action of this organism.

When animals are inoculated hypodermically with charbon virus this does not seem to be absorbed by the blood vessels, but by the lymphatics; that is, the *Bacillus anthracis* multiplies in

* L. Pasteur. Communication to Paris Academy of Medicine, July 17, 1877 also, *Recueil de Médecine Vétérinaire*, 1877, pp. 763-4.

the areolar tissue and progresses slowly towards the lymphatic glands; when these are reached, its progress is arrested until the inflammation which it produces causes sufficient changes in the gland to allow it to pass; when another gland is reached, the same process is repeated, and it is often a considerable time before the bacterium reaches the blood.* During this time the products formed by the bacteria are carried into the circulation, as well as an increased amount of waste products of the animal tissues caused by the inflammation of the lymphatic glands, by the increase of white corpuscles and by a general increase in the activity of the bioplasm of the whole body. The occasional result of this increase of waste products, in nearly all contagious diseases, is death in the early stages from chemical poisoning; it can hardly be doubted that in charbon death may occur either before, or, at least, very soon after the bacilli have reached the blood.

It is further maintained by some, however, that blood in which the bacilli cannot be found may produce charbon by inoculation; and that the disease so produced has all the characteristics of charbon, including the bacilli. From this it is argued that the bacteria are an epi-phenomenon, having no connection with the virus, and being dependant upon the condition of the blood. Pasteur has given an explanation of this which is in the highest degree satisfactory. When there are but a few bacilli in each drop of blood, he says, it is extremely difficult to find them, for a drop pressed between the thin cover and the slide has a diameter of three-fourths of an inch, and as we must use a power of 500 or 600 diameters, our field of vision is reduced to about 1-100 of an inch in diameter, giving in the drop, if I have calculated correctly, 5,625 microscopic fields. It is, consequently, next to impossible to say positively that there is not a single organism in the drop, if we rely upon microscopic examination alone. But Pasteur has demonstrated that whenever the inoculation of a drop of blood produces charbon, the cultivation of another drop

* Report of Committee which adjudged the Bréaut prize to G. Colin *Comptes Rendus* XCII, p. 599.

H. Toussaint, *Recherches Expérimentales sur la Maladie Charbonneuse* Paris, 1879, pp. 98-9.

in a sterilized infusion suitable for its growth will produce a crop of the *bacillus anthracis*.* It seems to me, therefore, that there is nothing here to cause any one to reject the plain evidence advanced in regard to the relation of the organism to the disease, since the presence of the bacillus may be always demonstrated, by cultivation, in virus that is capable of causing charbon.

2. BERT'S EXPERIMENTS.—It cannot be denied that the experiments of M. Bert were altogether the worst bombshell ever sent into the camp of the believers in the germ theory; and our antagonists evidently had a keen appreciation of this, for years after this investigator had recognized his conclusions as erroneous, they have continued to use them against the new theory. M. Bert used charbon blood that had been sent to him from Alfort; this he subjected to the influence of oxygen under a pressure of fifty atmospheres. As this blood still destroyed Guinea-pigs, it was coagulated with three times its volume of absolute alcohol, added drop by drop; the coagulum was well washed with alcohol and dried *in vacuo*.~ This dried coagulum yielded its virulent principle to water, from which it might be again precipitated by alcohol in the form of white flakes; and although these flakes no longer killed dogs, they were fatal to three successions of Guinea-pigs. Even after being preserved five months in alcohol this virus was still capable of destroying these animals. It appeared impossible at the time, to draw any other conclusion than that the virus was a soluble, formless ferment comparable to diastase.†

It must be admitted that this conclusion seemed trustworthy; at the time it appeared impossible to explain the result of these experiments in any other way; but there was a direct antagonism between this result and that previously reached by Koch. Many of us felt discouraged and feared that, notwithstanding the most perseverant efforts, the subject was destined to remain surrounded by an impenetrable veil; but a few, who had not lost their faith in the possibilities of scientific investigation to conquer all diffi-

* L. Pasteur, Letter to M. Bouley. *Recueil de Médecine Vétérinaire*, 1877, p. 917.

† P. Bert. De l'emploi de l'oxygène à haute tension comme procédé d'investigation physiologique: des venins et des virus. *Comptes Rendus*, May 21, 1871

culties, were certain that this antagonism was only apparent, and waited patiently for the solving of the enigma. They had not long to wait, for Pasteur at once took up the question and convinced M. Bert, in less than two months, that the results above stated did not conflict with the germ theory; and M. Bert read a second communication before the Académie des Sciences in which he satisfactorily explained what had before been such a mystery. He found that blood containing the bacillus rods alone, or urine in which these were cultivated, lost all virulence both by the action of compressed oxygen and by that of alcohol—the death of the organism always meant death of the virus. Pasteur and Joubert had just shown that the spores of bacilli and vibrios may resist both of these agents; did this not explain how the disease was produced by his preparations? To assure himself he examined the flakes which formed upon the addition of alcohol to the water that had been charged with the first coagulum; these contained numerous bright granules, identical in dimensions, form and appearance with the spores. These granules, placed in a proper cultivation-liquid, developed into long filaments, and thus the proof of their nature and vitality was complete; while the serum from Guinea-pigs that had died from inoculations, though extremely virulent, when filtered through plaster, gave a filtrate that might be inoculated with impunity, showing conclusively that the disease was not due to a soluble chemical poison or formless ferment. In conclusion M. Bert says: “It appears to me, then, absolutely demonstrated that the blood with which I experimented contained not only bacteridia, but septic vibrios, the corpuscle-germs of which have resisted the alcohol as well as the compressed oxygen, the adult organisms having, on the contrary, succumbed to these agents.”

M. Bert was completely satisfied, as was every candid man, that his experiments, instead of opposing the germ theory, really confirmed it; but some of the highest medical authorities in England, after having access to his second paper, either refused to accept the latter part of the evidence,* or quoted that part of the obser-

* T. R. Lewis. The Microphytes which have been found in the Blood and their relation to disease. *Quart. Journal Mic. Science.* 1879; pp. 373-5.

vations which told against the germ theory, and entirely suppressed the remainder.*

3. GREENFIELD'S EXPERIMENTS.—It seems to be established by Professor Greenfield that, by his method of cultivation, although the bacillus retains its vitality and morphological characteristics, it completely loses the power of producing disease after the twelfth generation. This fact we are willing to admit; but it seems absurd to bring it forward at this late day, as some are doing, to show that charbon is not due to this organism; before Koch's observations were made, it might have been accepted as having a bearing in that direction, and would undoubtedly have been a severe discouragement to the followers of the germ theory; but now, when the connection of the bacillus with the disease is demonstrated, it is useless to expect scientific people to barter an established fact for what is, at best, but a faint indication.

Nägeli has long held the view that the pathogenic bacteria are simply septic bacteria, which have been acclimated in some way and thus enabled to grow in the blood and tissues of living animals.† This opinion was the result of studies of the septic forms, which he found could be changed gradually from organisms that produce one kind of fermentation of an entirely different kind, and they then almost lost the power to live under the conditions which were at first extremely favorable to them. Acting upon this theory, Dr. Buchner was able, by a series of very ingenious experiments, carried out in Nägeli's laboratory, to confirm Greenfield's results and to transform the *Bacillus anthracis* into the harmless *Bacillus subtilis* or "hay bacillus; he was also able to reverse this process, and change the *Bacillus subtilis* into the *Bacillus anthracis* with all its virulence.‡

4. TOUSSAINT'S EXPERIMENTS.—In his first communication, this gentleman stated that fresh anthrax blood which had been heated to 55° (131° F.) might be inoculated on susceptible animals with-

* J. L. W. Thudichum. *Annals of Chemical Medicine*. London, 1879; pp. 231-2.

† C. v. Nägeli. *Die niederen Pilze in ihren Beziehungen zu den Infektionskrankheiten und der Gesundheitspflege*. München, 1877.

‡ Dr. Hans Buchner. *Ueber die experimentelle Erzeugung des Milzbrandcontagiums aus den Heupilzen*. München, 1880.

out causing disease, and that it had the property, when so inoculated, of protecting such animals from the effect of subsequent inoculations with virulent blood. It was believed that the bacilli were all destroyed at this temperature, and that the acquired immunity resulted from the introduction of substances which had been formed by them.

In this a fact and a theory were combined, and some of those who are so fond of criticising the germ theory seemed unable to comprehend where the one stopped and the other began; I think all were willing to accept the former, but some of us refused to believe the latter until better evidence was furnished. This was fortunate, for when M. Toussaint came to try his experiments on a larger scale, he was obliged to recall the theoretical part of his first statement. Twenty sheep were inoculated with the prepared virus at Alfort, of which four died of charbon, while all the remainder were sick of the same disease, but recovered. The heat, therefore, certainly reduced the activity of the virus, and caused it to produce a milder form of disease; but the immunity conferred was demonstrated to be the result of this mild form of the malady, and not to the introduction of an inconsiderable quantity of a chemical substance.*

PASTEUR'S LATEST RESEARCHES.—Since the above was written, I have received the *Comptes Rendus de l'Académie des Sciences* for February 28th, 1881, in which M. Pasteur communicates his latest researches in regard to the charbon virus. He had previously discovered that the action of atmospheric oxygen for a number of months (five to eight), destroyed the organism found in the virulent liquid of fowl-cholera subjects, and that during this period the virulence became progressively weaker, causing a milder form of disease, until, towards the last, and while the organism still retained its vitality, its virulence was entirely lost. Charbon virus was then investigated in the light of these facts. It was evident that the effect of atmospheric oxygen must be tried upon the rods, for the spores were known to retain their virulence unchanged for years. To prevent the formation of spores, the cultivations were made at a temperature of 42° to 43° C., at which

* *Comptes Rendus*, XCI, pp. 457-8.

point the organism multiplies by division of the rods without the formation of spores. Such a cultivation after standing a month in contact with pure air loses all vitality, and the organism transferred to fresh liquid is no longer capable of reproduction; the day before, however, and every preceding day its vitality was still retained, as was proven by its growth in such new cultivations. The virulence is entirely lost after the first eight days that the baccillus is kept at this temperature, and during these eight days the virus passes through progressive degrees of attenuation. When a baccillus was thus obtained which had lost all virulence for the Guinea-pig, rabbit and sheep, it was found that its powers might be restored by cultivating it in the bodies of certain animals. It would still destroy a Guinea-pig but one day old, though it had no effect on one of six days, and by passing it through several successions of the former, it was soon able to destroy animals three to four days old, then those a week, a month or several years old, and, finally, the sheep itself. The organism had entirely regained its original activity.

Having reviewed the recent investigations of charbon, somewhat hurriedly it is true, it must be admitted that there is no contradiction, no inconsistency to be found in them; we see a rapid increase in our knowledge of the pathogenic agent, which promises much for the future in regard to the whole class of the contagious diseases; but this advance has directly followed from a study of the *Bacillus anthracis*. The obscure points in regard to the preservation of the virus, its introduction into the body and its action on the organism have been made perfectly intelligible by the germ theory, and it is impossible to explain them on any other hypothesis.

Before concluding, and at the risk of repetition, I offer the following facts which prove the pathogenic action of the *B. anthracis*.

1. The one-hundredth cultivation of the *B. anthracis* in a harmless liquid, if made under favorable conditions, is as virulent as the fresh charbon-blood.

2. When the *B. anthracis* is removed by passing virulent liquids through a plaster filter, these liquids lose their activity.

3. Virulent matters containing rods only lose their activity in a few days if dried.

4. Such matters containing spores retain their activity an indefinite time when dried.

5. Virus containing rods only soon loses its activity if deprived of oxygen.

6. If these rods have formed spores, the activity is retained indefinitely, though deprived of oxygen.

7. Putrefaction destroys virus which does not contain spores, if the access of oxygen is restricted.

8. When there is sufficient access of air to allow formation of spores, putrefaction has no effect on the virus.

9. Virulent liquids containing rods alone lose their activity by being largely diluted with distilled water.

10. The addition of water has no effect on the virulence of liquids containing spores.

11. Virulent liquids, in which the bacillus has not formed spores, lose their activity in a few days if kept at 8° C.

12. If spores have formed, such liquids may be kept at this temperature indefinitely, and retain their original activity.

13. Virulent liquids containing rods alone lose their activity when treated with compressed oxygen.

14. Such liquids in which spores have formed are not affected by this agent.

15. The virulence is also destroyed by concentrated alcohol before spores have formed.

16. After spore-formation this agent has no effect on the virulence.

We have here a series of sixteen facts, showing the connection between the activity of charbon-virus and the presence of the living *Bacillus anthracis*; these facts have been observed and confirmed by the most accomplished investigators of the time, and I take it for granted they are entirely reliable. If they had all been announced by one man, we would be perfectly justified in making certain reservations before accepting them; but when we have the united testimony of such men as Koch, Cohn, Buchner and Nägeli among the Germans; Pasteur, Toussaint and Bert in

France, and Greenfield in England, it is not becoming to express doubts of their accuracy when we have not even one scientific observation to support us.

Accepting these observations as facts, I maintain there is no longer a shadow of doubt that the bacterium in question is the essential cause of the disease, and that it is the active agent, and the only active agent in the virus.

This being the entering wedge for the germ theory in scientific pathology, it is perfectly right to demand the most conclusive evidence before admitting it; but this evidence has now been furnished—the germ theory has a substantial foundation—and medicine is destined to make its most brilliant triumphs by the discoveries to which it will lead. The progressive pathologist will waste no more time in criticising what is so well established, but will press onward to other and equally important discoveries.

EDITORIAL.

VETERINARY BUREAUS—ILLINOIS AT THE HEAD.

In a late number of the *REVIEW* we called the attention of our readers to the measures which were discussed by the Legislatures of some of our States, and to the different bills which were then presented before the honorable representatives through the different parts of the country. The main object of the various projects presented was the necessity for the creation of veterinary bureaus with chief veterinary inspectors, to which would be referred the management of regulations relating to contagious diseases in domestic animals.

The necessity for the creation of such bureaus was already fully appreciated by the veterinary profession, and especially was this the case since the attempts made through the Eastern States for the stamping out of contagious pleuro-pneumonia after the embargo imposed on our cattle by England. And this need has become still more felt and increased in importance since the severe measures which have been established against the importation of our swine because of trichina, to say nothing of what threatens

us concerning our sheep, if foot and mouth disease should be proved prevailing amongst them.

But the need of State Veterinary Inspectors is not only to be looked upon so far as it concerns the above-named diseases; others as contagious, and probably as prevalent, are not to be overlooked, and at home they need as much professional watching; we all know that glanders, farcy and anthrax, under its different forms, hog and chicken cholera, Texas fever, &c., &c., are destroying yearly thousands of animals whose loss weighs heavily on the farmers and raisers.

It is therefore with great satisfaction, and we have no doubt with a feeling which will be appreciated by all, that we register the good news of the act passed by the Legislature of Illinois creating such a bureau. This great breeding State has taken the lead in that direction, and is now bound to protect her large live stock. We shall anxiously look for the news of the appointment, and hope that one well educated and well posted in sanitary science will be called to the position. We hope that the bureau will soon begin to perform its duties by an early appointment; in so doing Illinois will again take the lead of New York State, which is still waiting the appointment of the Commission which is to resume the work of stamping out pleuro-pneumonia, with the assistance of the appropriation recently granted by the Legislature of that State.

The creation of veterinary bureaus is one that must soon be general all over the country, perhaps specially so in the eastern States; and if we consider the condition of our live stock in those principally, all interested in domestic animals and their health will ask for it.

CONTAGIOUS DISEASES.

But a few years ago all contagious diseases were considered the most obscure portions of medical science. Their etiology and nature were so little known that all kinds of theories were advanced, admitted, to be soon rejected, and replaced by others of no greater value. To-day, thanks to the various researches made

by pathologists, assisted by better means of investigation, we are more advanced and better posted, if not with reference to the etiology and pathology of all, at least of a certain number amongst them; and it is thus that those which are known are considered by some no more as contagious, in the true sense of the word, but as mere parasitic affections. Scabies is the first one in the list by age; then the blood diseases, amongst which come the various forms of anthrax, chicken-cholera, hog-cholera, etc. And by these discoveries, not only are the causation and nature of these diseases better known, but also the most important facts in their history. We know better not only how to treat them and cure them in short time, but also to prevent them. The preventive inoculations with which the medical world has been made acquainted for many of them, are yet, for some it is true, to be generally tested, but so far as is known, they have proved one of the greatest accomplishments of our age.

Mr. Pasteur, who amongst some, has done so much to advance this obscure point of pathology, has recently directed his attention towards another of those diseases which affects the nervous centre and leave in them lesions, which have been observed by several investigators. We publish to-day a notice from the Academy of Medicine of Paris, relating to the inoculations he has made of the cerebral substance of mad dogs to healthy individuals, which are conclusive in their results, and full of promise. We are much inclined to consider all contagious diseases and their viruses as being due to the presence of some parasites of lower life, and we shall not be surprised if what has already been done for some of those affections, Mr. Pasteur will be able to prove for rabies. Why should it not become the disease of some microbe of the nervous system, as well as anthrax become the disease of bacteria in the blood?

SMALL HELMINTHS MISTAKEN FOR TRICHINA.

At this time, while investigation and inspection of meat supposed to be affected with trichina are likely to be carried on,

both by private and official labors, it becomes important to be acquainted with the probability of errors that may be easily encountered. To guard against such our readers will be interested in the article presented by Mr. Megnin on that special subject, to the Society of Biology of Paris. The characters given by the gentleman, as differential between trichina and individuals of the gender Spiroptera, which are commonly met in some lower mammalia and other lower classes of animals, will be read with interest.

NEW OUTBREAK OF PLEURO-PNEUMONIA IN PENNSYLVANIA.

From a recent communication we learned that contagious pleuropneumonia had been stamped out in Pennsylvania, and that the only danger of a new outbreak was from importation from other States, principally from Maryland. We were about registering this good news when we received from Dr. Gadsden, U. S. Veterinary Inspector, a paper from Philadelphia announcing the report of a new outbreak, which we reprint in the pages of the REVIEW. To a certain extent Pennsylvania was placed like New York at the end of the last Commission; the funds were cut short, hence the stopping of the good work, hence probably the new outbreak.

This speaks for itself, and shows the error of considering a State free from disease, until sufficient time has elapsed to warrant confidence against all dangers and providing all necessary measures had been taken. This new state of affairs will not help us to get rid of the English restrictions. The best thing we can recommend to Pennsylvania is the creation of a veterinary bureau with proper veterinary officers.

DR. E. VON HERING.

In our last number it was our sad duty to record the death of this celebrated veterinarian. To-day we have published from the pen of one of our correspondents a bibliography of the Doctor, whose life has been such a long series of labors and investigations in behalf of the veterinary profession.

SANITARY LEGISLATION.

STATE VETERINARY DEPARTMENT OF ILLINOIS.

In the early part of the late session of the Legislature of Illinois, the Illinois Legislative Farmers' Club, composed of some sixty or more farmer members of the Thirty-second Legislative Assembly, whose object it is to further such measures as are of direct importance to the agricultural interests of the country, took cognizance of the necessity of protecting the cattle interests of this State, as far as possible, from contagious diseases. A bill was prepared by the Hon. D. W. Smith, a wealthy farmer of Sangamon County, who, keenly alive to the necessity for legislation to prevent the spread of contagious pleuro-pneumonia among cattle, bent his energies toward that laudable object. After being fully discussed, it received the sanction of the Farmers' Legislative Club, and was at once introduced into the House. The bill, as it passed from one reading to another, was subjected to a vast amount of persecution, and encountered a bitter fight from first to last. Too much credit cannot be given to Mr. Smith, and to Senator Moffatt, of Macon County, and others, who did good work for the bill in the Senate at the very last hour.

While it must be acknowledged that the act is far from perfect, it is without doubt the best that could be done at present, and is a long step in the right direction. By its passage a new State Department has been created, and this done, its provisions can always be amended and perfected by future legislation. In the absence of National safeguards, mutual interests and good comity demand similar legislation by all the States of the Union. This act, which creates the office of State Veterinarian, takes effect on the first of July of the present year, and it is to be hoped that the Governor of the State may succeed in selecting the right man to fill the office.

The following is a copy of the law :

AN ACT to Suppress and Prevent the Spread of Pleuro-Pneumonia Among Cattle.

SECTION 1.—*Be it enacted by the People of the State of Illinois,*

represented in the General Assembly, That the Governor of the State is hereby authorized and instructed to appoint a competent veterinary surgeon, who shall be known as State Veterinarian or Inspector, and whose duty it shall be to investigate any and all cases of contagious or infectious disease among domestic animals of the bovine species in this State, which may be brought to his notice by a competent veterinary surgeon or practicing physician in the locality where such infectious or contagious disease may exist, and it shall be his duty to make visits of inspection to any locality where he may have reason to suspect that contagious or infectious disease may exist.

SEC. 2. In all cases of pleuro-pneumonia among cattle in the State, the State Veterinarian shall have authority to order the quarantine of infected premises, and in case such disease shall become epidemic in any locality in this State, the State Veterinarian shall immediately notify the Governor of the State, who shall thereupon issue his proclamation forbidding any animal of the kind among which said epidemic exists from being transported from said locality without a certificate from the State Veterinarian showing such animals to be healthy. In case of epidemic, as aforesaid, the State Veterinarian shall order the quarantine of infected premises, and shall order the slaughter of diseased animals thereon, and in case of pleuro-pneumonia among cattle, he shall, as hereinafter provided, order the slaughter of all cattle upon the premises which have been exposed to contagion; but before doing so he shall call in consultation with him two reputable veterinarians or practicing physicians residing within ten miles of the infected premises, and shall not order the slaughter of any animals not actually diseased without a written order signed by one or both of the said veterinarians or practicing physicians.

SEC. 3. Whenever it becomes necessary, as herein provided, to order the slaughter of animals, the State Veterinarian shall notify the nearest Justice of the Peace, who shall thereupon summon three (3) disinterested freeholders of the neighborhood as appraisers of the value of such animals; said appraisers, before entering upon the discharge of their duty, shall be sworn to make a true and faithful appraisement, without prejudice or favor. They

shall, after making their appraisalment, return a certified copy of their valuation to the Justice of the Peace by whom they were summoned, who shall, after entering the same upon his record and making an endorsement thereon showing the same to have been properly recorded, return it, together with the order of the State Veterinarian, to the person or persons owning live stock ordered slaughtered.

SEC. 4. Whenever the Governor of the State shall have good reason to believe that such disease has become epidemic in certain localities in other States, or that there are conditions which render such domestic animals liable to convey disease, he shall thereupon, by proclamation, schedule such localities and prohibit the importation of any live stock of the kind diseased into this State, unless accompanied by a certificate of health, properly signed by a duly authorized veterinary inspector. Any corporation or individual who shall transport, receive or convey such prohibited stock, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than one thousand dollars (\$1,000), nor more than ten thousand dollars (\$10,000), for each and every offense, and shall become liable for any and all damage or loss that may be sustained by any party or parties by reason of the importation or transportation of such prohibited stock.

SEC. 5. Any person or persons who shall have upon his premises any case of pleuro-pneumonia among cattle, and shall fail to immediately report the same to the State Veterinarian, or if any person or persons shall willfully and maliciously obstruct or resist the State Veterinarian in the discharge of his duty, as hereinbefore set forth, shall be deemed guilty of a misdemeanor, and, upon conviction of either charge, shall be fined not less than fifty dollars (\$50), nor more than five hundred dollars (\$500), for each and every such offense, and, upon conviction a second time, shall, in addition to the above-named fine, be liable to not less than thirty (30) days nor more than six (6) months' imprisonment.

SEC. 6. The State Veterinarian shall annually make a report to the Governor of all matters connected with his work, and the Governor shall transmit to the Department of Agriculture such parts of said report as may be of general interest to breeders of

live stock, to be published with the proceedings of the State Board of Agriculture.

SEC. 7. All claims against the State arising from the slaughter of animals, as herein provided for, shall, together with the order of the State Veterinarian, and the award of appraisers in each case, be submitted to the Governor, and he shall, after having examined each case, if satisfied of the justness of the same, endorse thereon his order to the State Auditor, who shall thereupon issue his warrant on the State Treasurer for the sum so ordered paid by the Governor.

SEC. 8. The State Veterinarian shall be entitled to receive for his services the sum of eight dollars (\$8) per day for every day actually employed under the provisions of this act, together with his necessary traveling expenses. He shall make an itemized account to the Governor, properly signed and sworn to, of the number of days he has served, and of the expenses which he has paid, and the Governor shall, if satisfied that the same is right and proper, endorse thereon his order on the State Auditor for the amount. The appraisers heretofore provided for shall be entitled to receive the sum of one dollar (\$1) each for their services, to be paid out of the treasury of their counties, upon certificate of the Justice of the Peace summoning them. The Justice of the Peace shall be entitled to receive the ordinary fee for issuing summons, to be paid out of the town fund in counties under township organization, and out of the county fund in counties not under township organization. The physicians called in consultation shall be entitled to receive for their services the sum of two dollars (\$2) per day and mileage at the rate of ten cents (10 cents) per mile one way; such compensation and mileage to be paid out of the veterinarian contingent fund. The State Veterinarian shall have at his disposition the sum of two thousand dollars (\$2,000), to be expended in disinfecting infected premises and other incidental expenses connected with his work, for which he shall, before entering upon the discharge of his duties, give bond with good and sufficient security, in the sum of five thousand dollars (\$5,000), and shall make a sworn statement to the Governor of the amounts he disburses. Any part of said two thousand dollars (\$2,000) not used shall lapse into the State Treasury

SEC. 9. For the purpose of carrying out the provisions of this act the sum of eight thousand dollars (\$8,000), or so much thereof as is necessary, is hereby appropriated out of the State Treasury to be paid as hereby provided out of any sums not otherwise appropriated.

FOWL CHOLERA.

DEPARTMENT OF AGRICULTURE, }
WASHINGTON, D. C., February 23, 1881. }

To whom it may concern :

I deem it advisable at this time to issue, in advance of the annual publication of the Department, the following brief but important paper, giving the results of some recent experiments made, under the direction of the Department of Agriculture, by D. E. SALMON, D.V.M., for the prevention of what is commonly known as chicken cholera. A detailed report of the investigation will be contained in the forthcoming annual publications of the Department.

WM. G. LEDUC,
Commissioner of Agriculture.

PREVENTION OF FOWL CHOLERA.

Although the cholera of fowls is an exceedingly virulent and fatal disease, destroying vast numbers of birds of different species, and remaining on premises for years after being once introduced, we are satisfied, after a long series of experiments, that there are points in its natural history which enable us to control it with comparative ease and with a considerable degree of certainty. These points are :

1. *The virus is not diffusible.*—That is, the disease germs are seldom, if ever, taken up by the air and carried any considerable distance to produce the malady. The virus remains in the fixed form, and is generally, if not always, taken into the body with the food; it is distributed over the grounds, feeding-

places, etc., in the excrement of affected birds, and the food, drink and gravel are thus contaminated. Healthy birds may be kept in coops within a few feet of the sick ones for months without contracting the disease; but if the former are now placed in the same inclosure with the latter they sicken in a few days.

2. *The virus must be carried upon the grounds frequented by fowls before they contract the disease.*—It is not probable that this disease originates, in any considerable number of cases, in any other way than by contagion. There is a possibility that it may originate in occasional instances by filthy surroundings if closely confined, or by feeding on decomposing substances; but there are few facts to support such a conclusion, and it appears certain that in the vast majority of cases the disease is imported and kept up by contagion alone.

It is thus brought upon farms either (1) with sick or infected fowls newly acquired, (2) with the blood or parts of the bodies of dead birds carried on the feet of people or brought by dogs or other animals, (3) with infected manure or feathers, or (4) possibly by wild birds, animals (rabbits), or even insects that have contracted the disease or have eaten the blood or bodies of affected birds recently dead. The origin of the disease can generally be traced in country districts, where houses are a considerable distance apart, to recently acquired poultry. It is only in districts more thickly peopled, and then in exceptional instances, that the germs are carried by wild birds or animals or by insects.

PREVENTIVE MEASURES FOR GROUNDS ALREADY INFECTED.

1. *Is the disease cholera?*—Fowls frequently die in considerable numbers from diseases that are not contagious, and hence it is a matter of primary importance to decide as to the nature of the affection when cholera is suspected. In my own experience I have found that this might be done with comparative certainty by inspection of the excrements. With fowls the excretions of the kidneys are joined in the cloaca with the undigested parts of the food, and both solid and liquid excrement are consequently voided together. They are not mixed to any great extent, however;

the part excreted by the kidneys is easily distinguished, as during health it is of a pure white color, while the bowel discharges are of various hues. The kidney excretion will be hereafter referred to as *the urates*, and it is the only part which claims our attention.

After a fowl takes the contagion into its body the first and only reliable symptom is a coloration of the urates. At first these have only a faint yellow tint, which rapidly changes, however, into a deep yellow color; up to this time the bird shows no other signs of the disease, its temperature is unchanged and its excrement of a normal consistency. In one or more days after this yellow color appears the urates are greatly increased in quantity and constitute the whole or a greater part of the discharges, and an obstinate diarrhœa sets in; in a few cases the urates now become greenish, and exceptionally they are of a deep green color.

The only lesion seen in post-mortem examinations that is likely to attract the attention of non-professional observers is the enlarged liver, which is nearly constant—it may be of various shades of color. Besides this, the presence of yellow urates in the cloaca and ureters is a valuable sign, and is generally present.

2. *Sick birds must be destroyed.*—The excrements of sick birds are the principal means of spreading the contagion, and the first step in stamping out the disease is, consequently, to destroy all which are voiding yellow urates. Care should be had to make the distinction between the urates and the bowel dejections, for the latter are frequently of a yellow color in health; but a little observation will preclude any mistake of this kind. The killing should not be by any method which allows the escape of blood, as this fluid is even more virulent than the excrement; wringing the neck is a quick and easy method of destroying the life. Once killed the bodies are to be taken beyond the limits of the poultry run and deeply buried.

If it is decided to keep the sick birds till they die or recover, they should be placed in an inclosure by themselves, as far as possible from the healthy ones, where they may be cared for

without entering, so that there will be no danger of carrying particles of the excrement on the boots and spreading the infection.

3. *Healthy birds must be placed on disinfected grounds.*—If a piece of land is at hand to which the sick birds have not had access, and which is consequently free from the contagion, the healthy birds should be penned upon it; but if all of the land is infected, then a piece is to be selected and thoroughly disinfected with the solution mentioned further on in this paper. The fowls are to be restricted to this disinfected ground for several months, or even a year or more, if practicable. The drinking vessels and feeding troughs are to be new, or if used before, they must be soaked for twelve hours with the same solution before being placed in the new inclosure.

4. *Observations to be continued to note the first re-appearance of the disease.*—Some of the fowls, though well at the time of removal to disinfected quarters, may be infected with the disease, and after the period of incubation, which varies from three to twenty days, will sicken. It is necessary, therefore, to make a careful inspection of the excrement each morning for at least three weeks after the separation of the sick fowls. If yellow urates are discovered, the birds must be watched until the sick one is detected. To facilitate the early discovery of such sick fowls and prevent infection of the healthy ones, it is advisable, where practicable, to separate the birds into lots of two or three each at the start; and this separation may always be practiced as a last resort where the disease successfully defies our efforts for a considerable time; but where this is impossible a little patience will generally enable one to pick out the sick before any harm has resulted. As soon as the sick bird is removed the excrement must be scraped up and burned, and the run must be again sprinkled with the disinfectant; or, the well birds may be changed to fresh ground, as before. This method of management is to be continued as long as new cases of the disease occur.

By a careful observance of these rules one can frequently check the disease with a loss of but one or two fowls out of a large flock.

5. *Disinfection*.—For this disease we have a very cheap and most effective disinfectant. It is a solution made by adding three pounds of sulphuric acid to forty gallons of water (or $\frac{1}{2}$ lb. of acid to $3\frac{1}{2}$ gallons of water) and mixing evenly by agitation or stirring. This may be applied to small surfaces with a common watering-pot, or to larger grounds with a barrel mounted on wheels and arranged like a street-sprinkler. In disinfecting poultry houses the manure must be first thoroughly scraped up and removed beyond the reach of the fowls; a slight sprinkling is not sufficient, but the floors, roosts, and grounds must be thoroughly saturated with the solution, so that no particle of dust, however small, escapes being wet. It is impossible to thoroughly disinfect if the manure is not removed from the roosting places.

Sulphuric acid is very cheap, costing at retail not more than twenty-five cents a pound and at wholesale but five or six cents; the barrel of disinfecting solution can, therefore, be made for less than a dollar, and should be thoroughly applied. It must be remembered, too, that sulphuric acid is a dangerous drug to handle, as when undiluted it destroys clothing and cauterizes the flesh wherever it touches. The safest way is, therefore, to take a five-gallon keg nearly full of water to the druggist and have him place the strong acid in this; the contents of the keg may then be safely transported and added to the barrel of water.

6. *Fumigation*.—In those cases where the disease has been raging for a considerable time the feathers become saturated with the contagion, and it is necessary before placing the fowls on the disinfected run to put them in a close building and thoroughly fumigate them with sulphur. For this purpose a pan of burning coals is taken and flowers of sulphur thrown upon them as long as the air can be breathed without danger of suffocation. When the disease is recognized at the outset this is not necessary.

PREVENTIVE MEASURES FOR GROUNDS NOT YET INFECTED.

1. *Newly-acquired birds to be isolated*.—When cholera is raging in a locality, all birds introduced from other flocks should be placed in an inclosure by themselves for at least three weeks, until it is certain that they are free from the disease. No fowls should

be accepted from a place known to be infected for at least a year after the last known cases occur.

2. *Precautions in regard to eggs.*—All eggs from a distance to be used for hatching must be thoroughly cleaned of all particles of excrement adhering to them, and the water with which they are washed, as well as cloths or brushes used, must be raised to the boiling point before being thrown upon grounds to which poultry has access. The virus is always destroyed by a boiling temperature, or even by 140° F., if maintained for fifteen minutes.

3. *Fowls not to wander upon adjoining infected premises.*—A stone wall is, in towns, frequently the boundary line of an infected place, and though fowls are upon each side of it the contagion may not cross for years. In such cases it is a matter of the greatest importance to prevent the healthy fowls from trespassing upon the infected grounds.

4. *Fowls from neighboring infected premises to be rigidly excluded.*—If it is important to keep healthy fowls from infected grounds, it is not less important to exclude fowls living in infected quarters from entering on runs that are still free from the disease. Even though insusceptible to cholera and, consequently, healthy, they are able to carry the virus on their feathers and feet and may even distribute it with their own excrement; for although the virus is unable to propagate itself in the blood and tissues of insusceptible birds, there is reason to believe that it may still multiply in the contents of their digestive organs.

5. *Other infected substances to be excluded from the runs.*—Manure from infected places is often purchased and spread upon land to which healthy poultry has access, and thus becomes a means of spreading the disease. This should either be entirely excluded from the farm or the fowls should not be allowed to come near where it is placed. It cannot be safely disinfected. Feathers and dead birds are also at times carried a considerable distance by various agencies, and should be guarded against when possible.

By a careful observance of these rules the fowl cholera may be excluded indefinitely, and may be exterminated when it has made its appearance. The writer has had a very virulent form

of the disease among experimental fowls for nearly eight months, and though his home flock is but a short distance from them, but a few of these have sickened, and then the disease has been checked with the loss of a single bird in each instance. It is believed that the birds which thus contracted the disease were infected by flies, which would gorge themselves with virulent blood in the laboratory, where dissections were made, and then fall victims to the poultry which were running about outside. No cases have occurred in this manner since the cold weather has destroyed these insects.

The experiments on which the above regulations are founded will be detailed in future reports of this Department; they are sufficiently numerous to be worthy of the fullest confidence.

The value of the method of preventive inoculation or vaccination discovered by Pasteur has not yet been decided, but in view of the comparative ease with which the affection may be controlled by the measures detailed above we doubt if it can ever be advantageously adopted as a means of preventing this particular disease.

D. E. SALMON, D.V.M.

ASHVILLE, N. C., Feb. 18, 1881.

GENERAL PATHOLOGY.

THE ATTENUATION OF VIRUSES AND THEIR RETURN TO VIRULENCY.

BY M. L. PASTEUR.

In recent publications, I have published the first example of attenuation of a virus by the only resources of experiment. Formed by a special microb extremely small, this virus may be multiplied by artificial cultivations outside of the bodies of animals. These cultivations, left without possible contamination of their contents, with him, undergo more or less deep alterations in their virulency. The oxygen of the air presented itself as the principal cause of these changes, viz., of these diminutions in the power of multiplicity of the microb; for it is evident that the virulency is mixed up in its different powers with the different faculties of growth of the parasite in the economy.

It is not necessary to insist upon the interest of those results, nor on their deductions. To look to diminish the virulency by ordinary means, is to base on experiment the hope to prepare with active viruses, of active cultivation in the

bodies of man and of animals, vaccine-viruses of limited development, able to prevent the fatal effects of the first. Therefore did we, with the collaboration of M. Chamberlain and Roux, direct all our efforts to the research of the possible generation of the oxygen of air in the attenuation of the viruses.

The virus of anthrax being the most studied, was the first to attract our attention. Still we were from the start to meet with a difficulty. Between the microb of chicken cholera and that of anthrax, there is an essential difference which does not allow a vigorous action in the new research similar to that of the old. Indeed, the microb of chicken cholera, does not seem to change in its cultivation into true germs. In those, they are only cells or segments always ready to multiply by scission, the peculiar conditions when they give true germs remaining unknown.

The yeast of beer is a striking example of these cellular productions able to multiply indefinitely, without appearance of their original spores. There exist many amongst the mucedinæ with the tubular mycelium which in some conditions of cultivation, give chains of cells more or less spheroidal, called *conidia*. These loosened from their branches, may reproduce themselves under the form of cells, without ever showing, unless by a change in the conditions of the cultivations, the spores of their respective mucedinæ. These vegetable organizations could be compared to the plants which are multiplied by grafts and whose fruits and seeds are not used to serve in the reproduction of the mother plant.

In its artificial cultivation, the bacteria of anthrax acts very differently. Its mycelian threads, so to speak, are scarcely multiplied during twenty-four or forty-eight hours that they are seen changing, principally those which have the free contact of the air into ovoid, very refringent corpuscles, separating little by little, and constituting the true germs of the small organism. Then, observation shows that these germs, so rapidly formed in the cultivation, do not alter with time, from the action of atmospheric air either in their vitality or their virulency. I could show the Academy, a tube containing spores of a bacteria of anthrax formed four years ago, the 21st of March, 1877; each year, the germination of the little corpuscles is tried and it always takes place with the same facility and rapidity as at the beginning; each year also the virulency of the new cultivation is tested and it shows no apparent loss of power. Consequently, how shall we test the action of atmospheric air upon the virus of anthrax with the hope of weakening it?

The knot of the difficulty is perhaps altogether in the fact of this rapid production of the germs of the bacteridie which we have just mentioned. Under its thready form and in its multiplication by scission, is not this organism entirely comparable to the microbe of chicken cholera? That a germ properly so called; that a seed should undergo no change from the air, this may be easily understood; but it is not so easily conceived that, if change is to take place, it should be in preference upon a mycelian thread. It is thus that a graft, which would be left alone on the ground to the contact of air, should soon lose its vitality while in those conditions the seed would preserve its power of reproducing the plant. If these views are correct, we are brought to think that to test the action of the oxygen of air upon the bacteria of anthrax, it would be necessary to submit to that action the mycelian development of the small organism, in circumstances where it could not produce the smallest germ corpuscle. Hence, the problem which consists in submitting the bacteridies to the action of oxygen, consists in preventing entirely

the formation of spores. Thus presented, the question, we will acknowledge, is susceptible of solution.

Indeed by several means the apparition of the spores can be prevented in the artificial cultivations of the parasite of anthrax. To the lowest temperature to which this parasite is cultivated, viz., -16° the bacteridie takes no germ, at least for some time. The forms of the small microb at this low limit of its development are irregular, in balls, pear shaped, in one word monstrous, but without spores. It is the same with the highest temperatures still compatible with the cultivation of the parasite, temperatures which may vary with the media. In the neutral bouillon of chicken, the bacteridie does not grow after 45° , on the contrary, it is possible and abundant at 42° and 43° but also without possible formation of the spores. Consequently, one may keep to the contact of pure air between 42° and 43° a mycelian cultivation of bacterids entirely deprived of germs. Then appear the very remarkable following results: after waiting about a month the cultivation is dead, that is to say, when placed in a fresh bouillon it remains sterile. One or two days before the impossibility of development is manifested, and all the preceding days, in the interval of a month, the reproduction of the cultivation is on the contrary, easy. So much for the life and the nutrition of the organism. For what concerns its virulency, the extraordinary fact is noticed that the bacteridie has already lost it after eight days of staying at 42° and 43° and subsequently; at least its cultivations are harmless for the cobayes, the rabbit and the sheep, three animal species most subject to contract the disease. We are then in possession, not only of the attenuation of the virulency, but of its suppression apparently complete by a simple artifice of cultivation. And besides we have the possibility of preserving and cultivating in this harmless condition the terrible microbe. What takes place in those eight first days at 43° which are sufficient to deprive the bacteridie of all its power? Let us remember that the microbe of chicken cholera itself also dies in its cultivations by the contact of air, in a much shorter time it is true, but that in the time between it undergoes successive attenuations. Are we not authorized to infer that it must be the same for the microbe of anthrax? This assertion is confirmed by experiment. Before the extinction of its virulency, the microbe of anthrax passes by various degrees of attenuation, and again, as that takes place for the microbe of chicken cholera, each of these conditions of weakened virulency may be reproduced by cultivation. Finally, as from one of our recent communications, anthrax does not recidivate, each of our reduced carbuncular microbes constitute for the superior microbe a vaccine, a virus able to give a more benignant disease. What, then, is easier than to find in those successive viruses vaccine able to give carbunculous fever to sheep, cows, horses, without killing them and able to protect them afterwards against the fatal disease? We have performed this operation with great success on sheep, and will attempt its application as soon as possible.

Already M. Toussaint has said that sheep can be protected by preventive inoculation; but when this expert observer shall have published his results, about which we have made close (still unpublished) studies, we will show all the differences which exist between the two methods—the uncertainty of one, the surety of the other. The one that we speak of has, besides, the very great advantage of resting upon the existence of virus vaccine, cultivable at will, that can be mul-

tiplied indefinitely in a few hours, without necessitating the use of more carbunculous blood.

The preceding facts present a problem of great interest. I mean to speak of the possible return of the virulency of attenuated or even dead viruses. We, for instance, have just obtained a carbuncular bacteridie free from all virulency for the cobaye, rabbit and sheep. Can we return to it its activity in relation to these species of animals? We have also prepared the microbe of chicken cholera, deprived of all virulency for chickens. How can we return to it the power of development in these Gallinaceous?

The secret of those returns to virulency remains altogether, actually, in successive cultivation in the bodies of certain animals.

Our bacteridie, harmless for the cobayes, is not so at all ages of those animals; but how short is the period of virulency! A cobaye several years old, one year, six months, one month, two or three weeks, eight, seven, six days, or even less, runs no danger of disease or death by the inoculation of the bacteridie we are speaking of; but, on the contrary, it kills the cobaye of one day. Surprising result! Our experiments on this point have never failed. If, then, one passes from the cobaye of one day to that of another, by the inoculation of the blood of the first to that of the second, from this last to a third, and so on, progressively, the virulency of the bacteridie will increase; in other words, it accustoms itself to development in the economy. Soon one may kill cobayes three or four days old, one week, one month, or several years of age, even sheep themselves. It has regained its original virulency. Without hesitation, though we have not as yet had occasion to test it, we may say that it would kill cows and horses, as it preserves this condition indefinitely if nothing is done to attenuate it again.

As it concerns the microbe of chicken cholera, when it has lost its power of action upon chickens its virulency can be returned to it through small birds—all species that it kills at once. Then, by successive journeys in the bodies of those animals, it may gain, by degrees, a virulency which will, *de novo*, manifest itself upon adult chickens.

Is it necessary to add that, in this return to virulency, and between its progressive steps, vaccine virus can be prepared of all degrees of virulency for the bacteridie, and that it is the same for the microbe of cholera?

This question of the return to virulency is of the greatest interest in the etiology of contagious diseases.

I closed one of my last communications in remarking that the attenuation of viruses by the influence of the air must be a factor of the extinction of great epidemics. The preceding facts, in their turn, may serve to explain the so-called *spontaneous* appearance of these scourges. An epidemic which has died out by the attenuation of its virus may return by the strengthening of this virus under certain influences. What I have read of the spontaneous appearance of the plague seems to be examples of it, such as the plague of BENGHAZI in 1856-'58, whose appearance could not be traced to any original contagion. Plague is a virulent disease proper to some countries. In those its attenuated virus must exist, ready to resume its active form when conditions of climate, famine, misery, exist again. There are other diseases which appear *spontaneously* in all countries—such as typhus of armies, no doubt the germ of the microbe, the authors of

those last diseases being spread all over. Man carries them on himself, or in his intestinal canal, without great damage, but also ready to become dangerous when, by special conditions of successive growths at the surface of wounds, in debilitated organisms or otherwise, their virulency is progressively reinforced.

And now virulency appears before us in a new light, which is not without alarm for humanity, unless Nature, in its evolutions through past centuries, has met ahead all the occasions of production of virulent or contagious diseases; which is most improbable.

What is, for man or any other animal, an inoffensive microscopic organism? It is a being which cannot develop itself in our body, or in that of that animal; but nothing proves that, if this microscopical being could penetrate into another of the thousand species of the creation, it could not invade it and make it sick. Its virulency, then strengthened by successive journeys into the members of that specie, might become in condition to invade other animals of large size—man or some domestic animal. By this method one may create new virulencies and new contagions. I am much inclined to believe that it is thus that through ages variola, syphilis, plague, yellow fever, &c., have appeared; and that it is also by similar phenomena that at times appear some great epidemics—such as, for instance, the typhus I have mentioned.

The facts observed at the time of VARIOLATION (inoculation of variola) had introduced in science the opposite opinion—that of the possible diminution of virulency by the journey of a virus through some subject. Jenner had this opinion, which has nothing improbable. However, till now we have not met with any examples of it, though we have carefully looked for them.

These deductions, I hope, will find new proofs in subsequent communications.

UPON SMALL ENCYSTED HELMINTHS WHICH MAY EASILY BE MISTAKEN FOR TRICHINA SPIRALIS.

BY M. MEGNIN.

At the Society of Biology the author presented a paper on this subject, saying that “since the discovery of *trichina spiralis* by Owen, numerous small worms have been assimilated, of similar dimensions, encysted also, either under the peritoneum, in the muscles or the parenchymatous organs, or in the subcutaneous cellular tissue. It is thus that Siebold has described, under the name of *trichina*, a worm found in small cysts of the peritoneum of some mammifera and birds as well as in the gray lizzard. Dujardin has also mentioned, under the name of *trichina inflexa*, a nematode forming a white, compact mass in the abdomen of a young fish of the Mediterranean Sea, of the gender *Mullus*. It

is specially when it is a question of tracing the origin of trichinosis of the pig that trichina have been found a little everywhere, not only in the small animals, which might be eaten by the domestic pachydermata, but also in vegetables. Thus Chacht has observed that in the radiculae of beets are found small capsules containing animals resembling trichina. Virchow has proved that they were not true trichina. Kuhn, and specially Hein, proved this last demonstration.

Langenbeck has discovered in the intestines of the earthworm as many as 600 small helminths, which he considered as true trichina. Haubner was of the same opinion, and, besides, has considered the moles, which contain this same encysted worms, rats, mice, tadpoles, as being very frequently infested with trichina. Kuhn has demonstrated that so far as it concerns the encysted nematods of the mole and that of the earthworm, they are zoologically perfectly distinct from *trichina spiralis*. I have myself made similar observations, and present to the Society cysts of the mole containing small worms ten times larger than the trichina, and which are the larvæ of the *Spiroptera strumosa*, whose adults are found in large numbers in the stomach of the same animal in March, April and May.

To the above small mammifera, Cobbold adds the hedgehog as being frequently infested with trichina; and, finally, two physicians, Doctor Merlan de Chaille and Professor Tigri, have seen trichina in the large cysts of the lungs of sheep; though Mr. Delpech has proved that they were the embryos of the *strongylus filaria*, mistaken for trichina.

The opinion of Cobbold relating to trichina in the hedgehog, as well as that of several authors upon the frequent presence of the same parasite in rats, mice and several reptiles, has not yet been doubted; evident proofs, on the contrary, have been given of the presence of trichina amongst rats of the countries where trichinosis is endemic in swine and in man; but I have strong reason to doubt that rats are the carriers of the parasite in the countries where trichinosis does not exist. I have already dissected a certain number of sewer rats, and have not met with trichina in their muscles. I know of other similar researches with similar unsuccessful results.

As far as the hedgehog is concerned, I am convinced that trichina has been mistaken for another worm of the Spiroptera gender, probably the encysted larvæ of the *Spiroptera clausa*, very common in the intestines of the hedgehog. I beg to show the Society preparations and enlarged drawings of an encysted nematode which was in the sheets of the omentum of a hedgehog, and which, at first sight, can be mistaken for the larvæ of the trichina spiralis, but by attentive observation it can be seen that if the dimensions of the cysts and of the worms they contain have a great analogy, they differ in their details. This worm of the hedgehog is more cylindrical, its mouth has a papilla, its pharynx is well-defined, its œsophagus long and in club shape, is not surrounded by the so characteristic cells of the trichinæ; the caudal extremity ends as an elongated cone, at the base of which is the anus, while this is terminal in the trichina, whose posterior extremity is wide, truncated and tailless. All these details, therefore, of the worm of the hedgehog are characteristic of the gender spiroptera, and not of the trichinæ; and, again, the interior of the cyst of the worm of the hedgehog is filled with a brown, granular matter, which does not exist in the trichinæ. I have not yet seen the cysts found by Siebold in the grey lizard, but, thanks to Mr. Blanchard, I have been able to study similar ones in the green lizards of Spain. These cysts are numerous not only in the muscles but also in the intra-visceral and subcutaneous cellular tissue. Here, also, we have no trichina, but larvæ of the *Spiroptera abbreviata* R., whose adults are found in abundance in the intestines of the same lizard. These larvæ have all the characteristics of the gender spiroptera; and, besides, are, as well as their cysts, twice and a half larger than the trichina and their cysts.

I have had lately the occasion to study a small encysted helminth found in the muscles of the frog which has more resemblance to trichina than the one described above; like that of the hedgehog, it has the same dimensions, but it is also a spiroptera which is almost cylindrical instead of being flattened forward as the trichinæ; which has the œsophageal region deprived of the characteristic cells of the trichinæ, and again which has a blunt

short tail, at the base of which is the anus ; the cyst is filled with brown matter like that of the hedgehog.

I have also studied in a bird (*Machetis pugnax*, L.) subcutaneous cysts having also a great analogy with those of trichina, but their more than double dimensions, as well as the worms they contain, which belong also to the spiroptera or rather Dispharagii that Dujardin has distinguished from the former, and which are very common in the walls of the stomach or free in the intestines of birds. These subcutaneous cysts contained enrolled larvæ in the middle of a brown mass like that of the hedgehog or of the frog.—*Gazette Medicale*.

UPON THE PRESENCE OF THE VIRUS OF RABIES IN THE CEREBRAL SUBSTANCE OF MAD ANIMALS.

BY M. PASTEUR.

Mr. Pasteur has presented recently at the Academy of Medicine of Paris a note upon the presence of the rabid virus in the brain substance of rabid animals. Since the fact published by Meynert, in 1869, that vasculo nervous lesions were found in the spinal marrow of two children which had died with hydrophobia, similar facts were reported by many pathologists in Germany, France and America, which demonstrated the presence of lesions of the nervous centres amongst those of rabies. Mr. Pasteur has had the idea of hunting the virus in the substance of nervous centres in animals which had died of that disease. His experiments, assisted by M. Chamberlain, Roux and Thuilier, were successful. The rabid virus exists in the substance of the nervous centres with a power of action as great as in the saliva. More than that, in inoculating the cerebral substance of an animal dead by hydrophobia, in the brain of a trephined dog, Mr. Pasteur has succeeded in shortening the duration of the inoculation, which thus does not last more than a week. This will facilitate the experimental researches upon this disease, which is yet so mysterious.

ZOOLOGY.

ENCYSTED TRICHINÆ IN THE INTESTINAL WALLS OF THE PIG.

BY M. T. CHATIN.

In a preceding communication, I have shown the presence of trichinæ in various tissues, where it has since been observed by others, (M. Fourmont, Delavaux, etc.,) facts which allow us to appreciate at their just value the descriptions which represent to us trichinæ as being special to the muscular system.

It seems besides that, far from assuming such rigorous localization, that helminth may be found in very different parts of the organism, as recently I had occasion to find it in a new structure.

Amongst the products of American importation, submitted to the examination of the laboratory of Havre, was a large lot of intestines of swine, whose inspection was made according to the ordinary way. Samples having been obtained from all the pieces of the different boxes, the microscopic study revealed a peculiarity that the classical notions did not allow to repeat; in the thickness of the intestinal walls were found numerous trichinæ in various stages of development. Some were in the embryo condition, or at least had hardly passed out of it, as, if they presented already a manifest existence of the mouth and intestines (this last as thin as a granular band) they nevertheless possessed in the general form of the body, the lanceolated condition which is characteristic of the period of development; others were better developed, larger, rolled and not encysted. An important condition not to be overlooked, is that most of the trichinæ were protected by the cysts normally formed and well defined, imbedded in the intestinal envelopes.

The fact is not only new in the natural history of the parasite, it asks also a certain attention in the prophylactic point of view. Indeed, these intestines being imported to be used as covering envelopes of sausages with indigenous meat, these might have been healthy and become infected by their envelopes; a small piece of it might have been sufficient to produce contamination.—

Gazette Medicale.

PNEUMONIA AMONG CATTLE.

AFTER BEING ERADICATED IT BREAKS OUT AGAIN—THE STATE REFUSES TO PAY FOR ANIMALS KILLED—PROSECUTIONS THREATENED.*

Pleuro-pneumonia has broken out again among Pennsylvania cattle, and, unfortunately, just at a moment equally critical for the farmers on the one hand, and a large body of business men on the other, owing to the action of the State authorities.

Both traders and agriculturalists will do well to give some heed to the subjoined facts, for the interests of both are deeply involved in the question, What is to be done?

United States Inspector Gadsden said last night to a representative of this paper that for a year or more State Inspector Edge had been doing his best to stamp out the disease. His efforts had at last been attended with success, and word was just about to be sent to the British consul—it will be remembered what a disturbance was created by that official's caution about American cattle—that pleuro-pneumonia had been totally eradicated from the State of Pennsylvania.

Suddenly, while that letter was lying ready to be mailed, came the announcement that the pest had made its appearance in two herds in York and Delaware counties. This was at first considered a trifling annoyance, and would have been so had it not, by the sudden and unexpected action of the State authorities, been changed into a very grave and complicated matter, menacing the agricultural and commercial interests of the State.

The disease had been stamped out by the operation of the act of May 1, 1879, under which the State paid a fair valuation for all cattle killed, assessed by arbitration under the administration of State Inspector Dr. Thos. J. Edge. The farmers knowing their cattle would be fairly paid for had reported the cases honestly; the herds had been quarantined; the infected animals killed, and the disease had been prevented from spreading. When

* Philadelphia *Inquirer*.

the news came from York and Delaware counties that one herd in each was affected, the sending of the letter that the disease was stamped out, was merely delayed, it was supposed, for a few days.

But just at this crisis came the thunderclap from Harrisburg in the form of an announcement from the Auditor General's Office that the State would pay for no more diseased cattle. This entirely altered the aspect of affairs, and rendered the new infection a most ominous and dangerous event.

That this was the case a moment's reflection will show. The farmers not receiving pay for their cattle, the diseased animals will not be killed, but disposed of in some way to the best advantage of the proprietor, and the disadvantage of his neighbors; and being smuggled in among other cattle, to be sold to the butchers, would infallibly spread the contagion. A remonstrance addressed to the State authorities did no good.

The act provided that "all the necessary expenses incurred under the direction or by authority of the Governor," in carrying out its provisions should be paid by the Treasurer. Nearly \$5,000 against \$350,000 paid by the English government, had been disbursed from the State Treasury for cattle killed, when it was discovered not to be one of the "necessary expenses," and an answer to that effect was returned to the inspectors.

Thus suddenly hampered in their work, they have fallen back upon the act, of which the cattle owners will do well to take notice, of April 12, 1866, which has never been repealed, and which has a very severe penal clause, which imposes \$500 fine or six months in jail.

"That act," said Inspector Gadsden, "will be rigidly enforced, and every man detected in violating its provisions will be prosecuted to the fullest extent of the law." But he admitted that he did not believe it would prove effectual in checking the spread of the contagion thus again introduced into the State. It may be mentioned that in both cases the diseased cattle came from Maryland, where the authorities have persistently refused to pay the farmers for such animals as had to be sacrificed to the general good.

HOSPITAL RECORD.

EPITHELIOMA OF THE MEMBRANA NICTITANS.

BY M. BUNKER, D.V.S.

The literature of the veterinary profession in this country is so limited that any uncommon or specially interesting case should be reported for publication, not only for the information and advantage of the immediate readers, but that such cases may be placed on record, thus furnishing cases for reference by the future veterinarian. Bearing this in mind, I beg leave to report the following case which has lately come under my notice. Early in May there was brought to the hospital of the American Veterinary College a bay gelding, 12 years of age, about 16 hands high, belonging to a city physician, for observation and treatment. This horse has, for the past two years, been shying more or less, at objects on his right side, if the object was above him, as a stage, or if it came from behind. There has also been a discharge, watery in character, from the eye. Upon examination of the eye both the upper and the lower lids were much inflamed, and on protrusion of the membrana nictitans it was found to be inflamed and enlarged, and with some abnormal growth upon its surface.

A diagnosis of epithelioma was made and its removal by amputation was advised. May 9th the horse was sent to the hospital for operation and treatment. When admitted the general condition was normal, and he was prepared for operation. A cold water compress was kept on the eye. On the 10th the tumor was removed by Dr. Pomeroy; it was found to involve the whole of the membrana, with some growths on the conjunctival tissue; the whole of these were removed, the eye-lids were opened with a speculum, the membrana grasped and drawn forward with forceps, and then with a pair of curved scissors the whole was excised. The eye was then carefully washed, and a solution of atropine grs. 4, aqua, oz. 1. was applied with a camel's hair brush three times a day; cold water applications were kept up.

The swelling of the eye-lids gradually became less, and finally on the 14th had become so diminished that no further treatment

being necessary the horse was sent home. A letter from the Doctor since then says that the horse is much improved in his driving, has ceased shying, and that there is no discharge from his eye.

The tumor was sent to Dr. Welch, of Bellevue Medical College, for microscopical examination, and he reports as follows :

The epithelium is in most places preserved over the surface of the tumor. In the region where the specimen is of greatest thickness, there is a great hypertrophy of the epithelial covering, this being eight or ten times the normal thickness. In no places can alveoli or spaces filled with epithelial cells be discovered, as in true epitheliomata. The new production of epithelium appears to be wholly a surface growth. The tissue beneath the epithelium is everywhere densely infiltrated, with small round cells, between which here and there can be seen racemose glands, partly hypertrophied. The lymph-follicles of the conjunctiva are numerous and swollen. The essential changes are, therefore :

1. Hypertrophy of the epithelium covering the mucous membrane.
2. Diffuse infiltration of the stroma of the mucous membrane with small, round or lymphoid cells.
3. Hyperplasia of the lymph-follicles of the conjunctiva.
4. A moderate hypertrophy of the mucous glands of the conjunctiva.

The morbid changes resemble those met with in lupus of the conjunctiva.

WILLIAM H. WELCH,

Bellevue Hospital Medical College.

June 1st, 1881.

We read in old works, and frequently in veterinary inquiries, in our agricultural and sporting press, of the protrusion of the haw or of the removal of the haw by being torn out, and the question naturally arises in our minds, are not such cases very likely to be due to the same cause, or be the same as that just reported, and in which the unskillful practitioner has by his tearing it out performed the operation of amputation. the only true remedy for the trouble.

REPORTS OF CASES.

FRACTURE OF THE EXTERNAL ANGLE OF THE ILIUM; CAUSED BY MUSCULAR CONTRACTION.

Editor American Veterinary Review :

Dear Sir.—The lesion found in the case that I am about to report, I am well aware is of frequent occurrence, and so far as itself is concerned, it is of but little interest. However, the history, although coming from a somewhat disreputable source, is interesting, even if it does no more than raise the question, whether it is possible for such a lesion to be present without being caused by direct external violence. The subject was a sorrel gelding seven years old, used as an off team horse in New York. A day or two previous to my seeing him, he was doing his customary work, in the lower part of the city, when, owing to the thronged condition of the street, the driver was compelled to stop for a time, until seeing an opportunity to proceed, he gave the animal a smart cut with the whip, which caused him to plunge forward, in doing which he stepped into a hole with the right hind foot. After going a few steps he showed signs of lameness in the off hind leg, and soon after was taken to his stable. A veterinary surgeon was called in, who, after making a diagnosis, told the owner that the horse must have been run into by a pole, as the lesion could only have been produced by direct violence. This the driver stoutly denied, and to sustain his point he requested me to examine the animal. Upon examination I found the superior portion of the external angle of the ilium completely broken off, the detached portion being about the size of an English walnut. There were no signs of violence to the parts, no heat, pain or swelling. These symptoms, however, were present over the gluteal region, midway between the external angle of the ilium and the coxofemoral articulation. During action there was no want of complete flexion of the femur and considerable adduction. I hesitated to express my opinion that the lesion was produced by muscular contraction, but being unable to discover any marks of violence, I did so. A day or two after relating the case

to Dr. J. L. Robertson, he told me that some years ago he met with a similar case, and the history coming directly from the owner, who was driving the animal at the time the lameness first showed itself, he inclined to the opinion that it was a case of fracture due to muscular contraction. It would be an interesting as well as an important point to settle, should such a case find its way into the courts of law, whether it is possible for such a lesion to occur from muscular action, when clinical testimony would of necessity have great weight. The above cases are evidence enough to convince me that such a thing is possible. I am well aware that many stoutly deny its possibility and will in the one case say that the driver's testimony is worthless, and in the other that the owner must be mistaken. The pathologist will be inclined to ascribe the accident to some diseased condition of the parts or to some previous injury, while others may accept the ingenious suggestion of a friend to whom I related the case, who thought there might have been an abnormal development of the ilium, and this portion being a center of ossification had not become firmly united with the remainder of the bone.

D. J. DIXON, D.V.S.

DEATH FROM RUPTURE OF THE RECTUM OCCASIONED DURING
ATTEMPTS AT COPULATION.

Editor American Veterinary Review :

I have just lost a 14-2-hand six-year-old brown mare that was sent to a sixteen-hands-high stallion to be covered. A young man about 18 years old was in charge of the stallion, and during the attempt to effect copulation the penis entered the rectum and lacerated the left wall to the extent of six inches or more. The wound through the organ was situated about eight inches from the anus, and extended some six inches into the surrounding tissues. But slight hæmorrhage resulted. Colicky pains came on in a short time, and lasted until death. The fœces gained access to the wound and served to increase the irritation and suffering. Excessive effusion followed, during the course of twelve hours. Peritonitis set in, and at the end of 36 hours the patient

was destroyed, as it was believed impossible that recovery could take place. No *post-mortem* examination was made.

A. A. HOLCOMBE,

Insp. Vet. Surg., U. S. A.

FT. LEAVENWORTH, KANS., June 10, 1881.

EXTENSIVE ABDOMINAL WOUND—RECOVERY.

BROWNSVILLE, NEOSHA COUNTY, NEBRASKA, May 16, 1881.

Prof. A. Liautard.

DEAR SIR:—Some two years since I casually heard of a mare being quite seriously injured, but was not acquainted with the facts or magnitude of the injury, until some four days since. Thinking they may be of interest to yourself or the readers of the REVIEW, (should you think the case worthy of publication) I append them, as follows:

George Boyant, an intelligent and well-to-do farmer of the above address, owns a chestnut mare, 10 years old, 15½ hands high, which whilst playing in a pasture (during the owner's presence) ran against a fence with such force that a piece of post was broken off, puncturing her side about eight inches, which, to use his own language, being "jerked out by him, the contents of the stomach flew out of the wound some six or eight feet." The wound was large enough for a man to introduce his arm easily, and the edge of the liver protruded through the opening. On being asked whether any of the contents of the stomach fell into the cavity of the abdomen, he replied that he thought not, as the diaphragm (which was plainly visible) partly prevented it, he could not explain exactly how, but such was his belief. The puncture was made by a piece of wood about three feet long, two inches thick, and four inches wide, tapered to an irregular oblique point, which was flattened from side to side. Quite a number of neighbors were called in, and are willing to swear that the stomach was punctured and the contents issued through the wound. Furthermore, Dr. McGrew, M. D., of London, Nemoha County, Nebraska, who was passing at the time, upon the sollicita-

tion of Mr. Bryant, drew the edges of the external wound together by sutures (*i. e.* the abdominal walls were not included in the sutures.) An old sack was then secured over the part by a surcingle, and the animal turned loose to die. Incredible as it may seem, with no other treatment whatever, she made a good recovery, and her owner states that she scarcely lost a meal. She now does her work regularly, and is sound and well, showing however a deep cicatrix in her off side which has a caved in appearance, probably from the non-adhesion of the abdominal walls.

The above are the facts stated to me, and to which Dr. McGrew, whose address I gave, and a number more I could give if called upon, will certify.

Respectfully,

GEORGE HATCHETT.

ADENITIS, FOLLOWED BY LARYNGITIS AND RHEUMATISM.

Mr. Editor :

I send you a report of a case which came under my observation this winter, thinking it might perhaps be of some benefit to my fellow graduates, should the same symptoms be shown in any of their patients. The patient, a bay mare, 15.3 hands, 8 years old, was affected in January with a slight attack of adenitis, of such a character as to be unnoticed by either owner or groom, until the abscess broke on the evening of February 15th. I was called to see the patient, her owner requesting my presence at once, he being of the opinion her patella was dislocated. On my arrival at the stable I found the animal standing, pulse 42, temperature 100 2-5, respiration normal, and the patient eating a bran mash. When moved she showed excessive lameness of the off hind leg, with a little swelling and pain on pressure, over the patella.

The history I received was, that the patient had recently recovered from strangles, which was very slight, and when going to feed she was lying down. On being spoken to somewhat sharply, she jumped up, and showed the symptoms related.

When asked by her owner the cause of the lameness, I replied that I was of the opinion that some muscular lesion had taken place at the moment of jumping up, but would give no positive diagnosis until the following morning, and recommended warm fomentations of the leg until my return.

On my next visit I found my patient standing, with head extended, eyes protruded, respiration 53, temperature 106 1-8, the body covered with excessive perspiration and making much noise at each inspiration. Mucous membranes cyanotic, all the joints swollen enormously, so much so that at each movement she was in danger of falling, and when touched caused her much pain.

Diagnosis.—Acute articular rheumatism associated with laryngitis.

Treatment.—To relieve the labored respiration I performed tracheotomy; have swollen parts bathed with tr. opii, aconite and capsicum in the proportion of two oz. each to aqua Oi; put in slings; keep warm and feed milk and eggs, and give linseed tea to drink, as it was impossible to give any internal treatment in form of boli or electuary. I ordered potass. nitrat. \mathfrak{z} ij, three times a day, and blistered larynx.

The treatment was kept up for six days, at which time I removed tracheotomy tube, and gave a mild cathartic, composed of aloes, \mathfrak{z} iv, followed by two drachm doses of acid salicylic, three times a day for the space of a week, at the end of which time my patient had so far recovered as to be removed from slings and eat hay and oats with apparent relish. I am pleased to say two weeks following she was discharged, and has since been doing her usual work.

E. HANSEW, JR.

INJURY OF THE NECK FROM BEING CAST.

By H. B. BOYD, D.V.S.

NEW ROCHELLE, May 24, 1881.

I was called to a case on April 15th, at Eastchester, and on learning its history, found that the animal had been cast in its stall a night or two previous, and was found lying in a very un-

common position, having, from appearances and position, seemed to have turned a complete summersault upon its neck. The head was wedged between the body and the stall, while the posterior extremities were towards the manger. The owner had great trouble in getting him upon his feet, and it was some time before the animal could remain standing any length of time. Its head and neck was swollen so much as to be unrecognizable. The head was suspended to the floor and flexed to the left; on the left side of the neck the swelling was hard and painful, the largest dimension being about the fourth cervical vertebra. The right side of the neck appeared to be emaciated. I could outline the vertebra. Temperature 104, pulse 60. The animal could not elevate his head nor carry it to the right, nor could I with force, which I tried to do, as I suspected partial dislocation or fracture of the vertebra, but upon a closer inspection and watching the patient, I found it an error; so prescribed hot fomentations with mustard to be constantly applied.

On April 25th, the swelling had left the head, and the animal could raise its head sufficiently to eat from a deep pan soft mash. Temperature 102, pulse 48. The neck was still flexed and swollen. Continued the same.

May 18th, the swelling has almost disappeared. The head was elevated to its normal condition, but there still remained an enlargement near the superior border of the scapula. Temperature 101, pulse 45. Appetite good.

May 21st, the owner called and said the patient was doing well, and he expected to use him in a short time.

REVIEW.

REPORT OF THE CONNECTICUT BOARD OF AGRICULTURE.

The annual report of the Connecticut Board of Agriculture is before us. It is certainly very gratifying to see the rapid strides that are now being made by agriculturists. In the present report the value of commercial fertilizers, and their adaptability to different crops, is given a prominent space. The relative value

of feeding stuffs also comes in for a fair share of attention. The Commissioners on Diseases of Domestic Animals refer to pleuropneumonia, tuberculosis, abortion among cows, glanders, &c., and give some valuable hints regarding the necessity of quarantine and disinfection. The work done by the different State boards of agriculture is being more fully appreciated year by year, and we, as veterinarians, have every reason to feel interested in their success.

NECROLOGY

OF CHIEF MEDICAL ADVISER, DR. E. VON HERING.

BY J. C. MEYERS, SR.

Dr. E. von Hering was born March 20, 1799, in Stuttgart. After graduating from the college of his native city he devoted his time to the study of pharmacy at his father's home. 1819 he entered the University at Tübingen as student of the higher branches of veterinary science, at the same time receiving private instructions in veterinary science from Prof. Hofacker. 1821-22 he attended the veterinary colleges in Vienna and Munich, and then went through Dresden and Berlin to Copenhagen, where he remained until the death of E. Viborg. After his return he accepted a position as teacher of anatomy, physiology and materia medica at the newly erected college at Stuttgart. He spent the summer of 1826 at Alfort and Paris, where he was particularly recommended to G. Cuvier. From 1828-1858 he, in addition to the above-mentioned branches had charge of the clinic of the college. From 1824-1831 he served as lecturer on veterinary science at the agricultural institute of Hohenheim. 1835 Hering resigned the chair of anatomy and assumed that of special pathology and operative surgery. As member of the breeding commission from his district he made several visits to North Germany, England, France and other places. In 1842 he was appointed medical adviser, and in 1862 chief medical adviser and director of the veterinary college, and since 1858 held the position of referee in the war department. Up to the year 1847 Hering's literary pro-

ductions are enumerated in his description of the Royal Veterinary School; they touch chiefly upon special anatomical observations, physiological experiments relating particularly to the rapidity of the circulation, after a new method which was subsequently fully endorsed by Vierordt in Tübingen. In consequence of these productions he received, on the occasion of the dedication of the new University in Tübingen, from the medical faculty (*honoris causa*) the diploma of Doctor of Medicine. Hering compiled the annual report pertaining to the progress of veterinary science for Canstatt & Eisenman's annual report since 1846. Of his independent works may be mentioned the following: Physiology for Veterinary Surgeons, 1832. Lectures for the Lovers of the Horse, with drawings by Baumeister, 1834. On Cow-pox in Cows, 1839. Special Pathology and Therapeutics for Veterinary Surgeons, 1842, 1849 and 1858. The Veterinary Materia Medica, 1847, 1855. Handbook of Operative Surgery, with Lithographic Plates, 1857, 1865, 1879.

He furnished numerous practical as well as scientific treatises for the *Repertorium der Thierheilkunde*, which journal he edited 1839–1875, and from then until the time of his death reported (in the *Repertorium*) the most interesting extracts from foreign journals. He endeavored, and succeeded with the co-operation of other zealous professional men, to elevate veterinary science to such a standard that it can well compare with human medicine and other sciences. He was an active member of several of the most prominent academies of Europe, and received most honorable distinction, not only from those corporations, but also from emperors and kings.

As teacher he received undivided approbation; his lectures were clear and to the point; in the clinical field he commanded the implicit confidence of high and low. In the surgical department he proceeded with wonderful precision and dexterity. His colleagues at home and abroad showed him the greatest possible courtesy.

Closing a most deserving and praiseworthy life, Prof. v. Hering passed away March 28, 1881, highly esteemed and honored by all who knew him, and particularly by his scholars, who will always remember him with gratitude and reverence.

NOTICE.

It is earnestly requested that all those who have failed to remit their initiation fee to the United States Veterinary Medical Association will do so at once, in order that certificates of membership may be issued to all.

E. B. MICHENER, Sec.

NEWS AND SUNDRIES.

EXPORT OF SHEEP.—Two thousand sheep have been shipped to Europe every week since 1881 came in. These had to be the very best specimens of sheep for mutton.

EPIDEMIC AMONG DEER.—The *Turf, Field and Farm* of June 3d, 1881, calls attention to the following epidemic among deer in England: A malignant epidemic is raging among deer in certain parts of England. Many have died, apparently eaten up internally by parasites. The disease is spreading in the parks of Nottingham.

LIVE STOCK IN THE UNITED STATES.—The aggregate number of live stock in the United States is set down at 82,000,000 head.

FOOT AND MOUTH DISEASE IN THE UNITED STATES.—The *New York Herald* of June 3d, 1881, contains the following: Nearly all the cattle by the Allan line steamer *Phœnician*, which arrived at Glasgow on the 31st ult. from Boston, were found to be affected with foot and mouth disease. The slaughtered carcasses will be boiled down.

CATTLE DISEASE IN RHODE ISLAND.—A fatal cattle disease is said to be attacking herds at Pawtuxet, R. I.

CANADIAN EXPORTATION.—During May 9,000 head of cattle and 2,500 sheep were exported from Montreal to Great Britain,

an increase of 2,000 cattle and 1,000 sheep over the corresponding month of 1880.

DR. ROSE ON PLEURO-PNEUMONIA.—It was reported by the daily papers that Dr. Rose of Staten Island had discovered the etiology of contagious pleuro-pneumonia in the shape of an "insect egg." Hearing nothing from the Doctor himself, we can no doubt justly infer that the "discovery" is not fraught with the significance given it by the press.

AMERICAN VETERINARY REVIEW.—There remain a few complete numbers of the third and fourth volumes of the REVIEW, which can be had at the office of the American Veterinary College.

GLANDERS IN IOWA.—It is reported that Governor Gear of Iowa has commissioned a veterinary surgeon to visit the different districts of the State affected by glanders, with power to take such steps as he deems necessary to secure protection against a further spread of the disease.

CONTAGIOUS DISEASES IN AMERICAN SWINE.—The State Department at Washington publishes a mass of information from diplomatic representatives on the pork trade in Europe. Minister Kasson insists that until official action is taken at home in regard to the cause and effect of hog cholera or trichina, we are in some degree responsible for the alarm existing abroad. Minister Noyes expresses the belief that not one per cent. of American pork is affected. Minister Lowell reports that Mr. Mundella will not permit unnecessary restrictions in England.—*National Live Stock Journal*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Veterinarian, Veterinary Journal, Clinica Veterinaria, Revue fur Thierheilkunde und Thierzucht, Archives Veterinaires, Revue d'Hygiene, Recueil de Medecine Veterinaire, Gazette Medicale, Annales de Belgique, Journal de Zoötechnie, Journal Dosimetrique, Presse Veterinaire.

HOME.—Medical Record, Surgical Reporter, Turf, Field and Farm, American Agriculturist, Prairie Farmer, National Live Stock Journal, Bulletin of National Board of Health, Medical Herald.

JOURNALS.—Home Farmer (Maine), Iowa Farmer, Farm Journal (Philadelphia), Farming World (Chicago), Illustrated Journal of Agriculture (Montreal), Minnesota Farmer.

PAMPHLETS.—Announcement American Veterinary College, 1881-'82. Announcement of Montreal Veterinary College, 1881-'82.

COMMUNICATIONS.—M. Bunker, R. Harrison, J. W. Gadsden, A. A. Holcombe.

AMERICAN VETERINARY REVIEW,

AUGUST, 1881.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 136.)

Pathological Anatomy and Nature of the Disease.—It has always been considered that a morbid condition susceptible of producing disorders so severe as those produced by canker, must necessarily be a deep affection, essential and important to the organic structure, and depending on a complete transformation in its texture. And, indeed, it is the impression which predominated from the time of Solleysel down to the foundation of veterinary schools and which still exists with Girard, who considers canker as a gnawing ulcer which changes and alters the tissues it invades, and even with Vatel and Hurtrel D'Arboval, who looks upon canker as the carcinoma of the reticular structure of the foot.

It is but recently that these ideas have been abandoned. Dupuy, in 1827, considered canker as a hypertrophy of the fibres of the hoof, admitting at the same time the disintegrations and softening of those same fibres occasioned by an ammoniacal saponization produced by an altered secretion.

In 1841, Mercier expressed the opinion that canker is nothing more than a chronic inflammation of the reticular tissue of the foot, characterized by diseased secretions of this apparatus.

It is now known that there is in canker, no essential altera-

tions of the sub-horny tissues; no radical change of their substance, and no deposit of heteromorphous molecules in their structure. This last mentioned fact was well observed by Robin, who in his microscopical remarks constantly observed the absence of the characterizing elements of canker. Hertwig and Haubner, who have made researches in the same direction, arrived at the same result and have noticed the absence of any cancerous cells in canker. This opinion is, however, doubted by Glisberg and Fuchs, who look upon canker as an epithelioma, though they bring no sufficient evidence to establish it.

Except vegetal parasitism, of which we will speak hereafter, and which makes of canker a true dartre, an herpetic disease, as demonstrated by Megnin, there is only in canker a chronic inflammatory condition of the sub-horny tissues which is manifested by a perversion in their secretion, and is complicated by a morbid hypertrophy of the villous processes by which their surface is normally covered. Robin has seen in the *fici*, papillæ made thicker and more brittle by the plastic infiltration which moistens them; he has observed besides, that at the points where the secretion is good, it is so active, that instead of drying in sheaths, to scale off afterwards in transverse pieces, as normally occurs in the frog and sole, the epithelial cells grow lengthwise, as those which form the walls of the foot. Hence these long, horned, twisted threads (epithelioma?) which are seen rising from the sole of long affected cankerous feet.

It has sometimes been admitted that *fici* had deep roots in the tissues, and even in the plantar aponeurosis, which is an error; injections and macerations having shown that there are no essential changes in the anatomical structures of these parts, and that what have been considered as the roots of *fici* were only cellular tissue, which has become indurated under chronic inflammation (Bouley.) *Fici* are only fasciculi of villousities whose vascular net-work is no longer retained by the thick horny box which encloses them and which is infiltrated with plastic material.

Bouley has already admitted that canker could not be better classified than amongst skin diseases, with and after dartroid affections, and thus gave reason to Huzard senior; Plass also found that canker had the greatest analogy with grease, and that in it

the nutrition of the horn underwent the same alteration with nutrition of hairs in the second affection.

Megnin in 1864, observed, in operating upon fresh pieces taken from the living animal, and from one which had not received any treatment, that in canker there is constantly a cryptogam, as in favus, and that canker is a parasitic affection.

Examining the caseous product of the abnormal secretion which characterizes canker, Megnin found in it a large quantity of very animated vibrios, swimming in a liquid having in suspension numerous epidermic cells more or less advanced in dissolution; he found besides rounded corpuscles, which he recognized as the spores of the cryptogam, and from which the vibrios escaped at the maturity of the granulations there contained. In examining the fici, he has recognized them to be an aggregate of hypertrophied villousities, at the base of which were found in the mass obtained by a slight scraping epidermic cells or parts of cells enclosed in a net work of inter-crossed, ramified threads, appearing to rise from certain centers marked by an agglomeration of spores, forming in their whole a yellow spot. In the water of the microscopic preparations, one finds also, several of these isolated threads, epithelial cells, globules of lymph, of blood and finally spores; very rarely vibrios; oftener micrococci. These threads are nothing more than the parasites, the mycelium product of the vegetation of the spores; those contained in the serosity, swell, break up, and the granulations which escape from them become for some time the vibrios, or as we prefer to call them pseudovibrios; as soon as the brownian motion, which for some time animates the granulations, ceases, the cells which have proceeded from them (the micrococci) gather together in chains and form the characteristic threads of the mycelium.

This parasite of canker has been named by Megnin the *kero-phyton* or parasitic plant of the horn by analogy with the *trichophyton*, the parasite of the hair. We consider this name very appropriate and prefer it to the name of *oidium batracosis*, parasite of canker, which Mr. Megnin has also proposed.

Etiology.—The causes of canker are yet but little known; there is one, however, which cannot be ignored and which, if it does not produce the disease, assists materially in its

development and is indispensable to its existence. We refer to the condition of dampness. It is that influence of dampness which explains why the disease is so very common in the marshy lands of Poitou; in the pastures of Holland, and in general in low grounds; and why it is more frequent in northern than in southern countries. Canker is incomparably more frequent in rainy seasons than in those where dryness predominates. We have already seen in the history of the disease that it is since the streets and the stables of administration are kept more free from dampness that canker has become less common.

Sometimes the action of direct irritating causes has been admitted, and then the canker has been attributed to irritating muds and the excrementitious liquids of stables; their contact often giving rise upon the skin, upon the glomes of the frog, to an erythematous inflammation, soon followed by a serous flow, which extends to the sub-horny structures and gives rise to an exudation in the laminae of the frog. This cause produces the rotten frog (thrushes) but not canker. We believe that this cause has principally been admitted by veterinarians who look upon thrushes as the first stage of canker, but this is not so, and for canker to develop itself under similar conditions, others are necessary, which are as yet unknown.

Canker has also been attributed to narrow and contracted feet, so common in horses of meridional climates, and in which the sole is very concave with the frog and pyramidal body shrunk in. Often in the laminae of these feet a sero-purulent moisture is discovered more or less offensive, which is a rotten frog, but not canker, and but seldom followed by it.

To produce canker, a simple irritation of the sub-horny structure is not sufficient. There must be a special cause, proper to canker, stimulating alone the characteristic changes of the cause. This cause we find in the cryptogam which characterizes canker, propagates it, and which, like other living beings, has no power of spontaneous existence.

As with other parasitic diseases, canker is communicable by contagion; although the examples are quite rare, they cannot be doubted. Hurtrel, d'Arboval, Plass, Blind and Megnin have

observed them, and in all the cases dampness has contributed to the propagation of the cryptogam.

The lymphatic constitution in an animal is eminently propitious to the development of canker, as it is observed to be, in fact, for all parasitic diseases.

It is known by daily observation of facts that horses whose skin is thick, with the hairy system well developed, the feet flat, with thick frogs, are more often affected with canker than animals of a nervous constitution. It is more particularly observed in horses with much white at their extremities, with stockings and white feet, and in those where there is a tendency to albinism.

An unknown diathesis has also been considered as causing a predisposing constitutional organic condition, but this has not been justified by observation. It may happen that canker cured or dried on one foot, may attack another foot, perhaps a third, and then a fourth, to re-appear in the first; this character of the disease has often been mentioned as a proof of this diathetic condition; but it may also be explained by its contagious character. The disease remains too much localized to be constitutional, as generally in diathetic diseases we have critical eruptions upon different organs or different tissues.

(To be continued.)

RESUMED STUDY IN ANTHRAX.

CONSIDERED FROM THE POINT OF VIEW OF SANITARY POLICE.

BY PROF. DESSART.

GENERALITIES.—The name of carbuncular disease has been, until lately, applied to numerous affections having some common characters, but different in their nature. This application of an improper name to diseases which, in reality, are not anthrax, might have given rise to serious difficulties in the matter of sanitary medicine, especially in leading to errors in the administration of justice, in the imposition of the fines imposed by provisions of the Penal Code. Fortunately the obscurity which surrounded

the etiology and nature of the carbuncular process has to-day disappeared. Science has succeeded in clearly establishing the distinction between true carbuncular affections and those which possess only some more or less marked resemblances to them.*

Amongst the several diseases grouped by empirical observations under the collective designation of anthracoid, there are but few which present the pathognomonic sign of anthrax. Evidently these last are those which are referred to in the laws of 1867.

* * * * * * *

Charbon is a parasitic disease. It is produced by the presence in the blood, and other *media* of the animal economy, of a mycrophite called *carbuncular* bacteridie. Most of the mammifera and domestic animals are subject to it. We will, however, limit our symptomatic description of anthrax as we meet it in the horse, the ox, the sheep and in swine. We nevertheless, must make a special reserve in respect to the swine species. As it seems that diseases of small hogs, or properly, pigs, called *carbuncular angina*, *gangrenous erysipela*, etc., though considered to this day as manifestations of anthrax, were of a different nature, probably of septic or anhematosical nature.† At any rate, in case of difference of opinion as to the nature of these affections, the presence or absence of bacteridies in the blood or lymph of the patient's wound settles the question. At best, one could have recourse to experimental inoculation.

But before giving the symptoms of anthrax, some preliminary data essentially necessary to its exact knowledge must here find a place.

The contagium (virus) of anthrax is constituted by the parasite itself, which produces the affection; that is, by bacteridie. It has just been demonstrated that the microphyton is but an ulti-

* The observations of Delafond, Brauell, Koch, Davaine, Joubert and more recently, especially the important discoveries and experiments of Pasteur, Toussaint, and Hans Buchner have thrown the greatest light upon carbuncular diseases. The etiology of anthrax rests, thanks to the last investigators, upon a solid, material base, and to-day the disease has limits as well defined as those of hydrophobia, scabies, small-pox, etc., etc.

† It has been proved *experimentally* that pigs are *refractory* to anthrax (*Recherches, sur la maladie charbonneuse*, Paris, 1879, by H. Toussaint.) Is it equally so in ordinary circumstances?

mate transformation of the mucedinæ of hay.* Bacteridie (bacillus anthracis) is, so to speak to anthrax what the acarus is to scabies. The presence alone of bacteridie in the blood "indicates positively the disease." †

Carbuncular mycrophytes penetrate into the blood by different modes. 1st, by solution of the continuity upon the mucous membrane of the digestive apparatus (principally the mouth and pharynx) through the coarseness of thistles and plants upon which animals live; 2d, through wounds of external tegument; 3d, through the respiratory passages.‡ In this last case, the microscopic algæ,|| which produce the disease, being in suspension in the location where the growths of unwholesome pastures are inhaled by animals down to the finest bronchial division.

Introduced into the living tissues of the economy, and from thence into the blood, the parasites of anthrax give rise in it as well as in the capillary system, to disturbances which constantly end fatally, in seldom less than four days. In the greatest number of cases, animals die in the first two days after the earlier manifestations of the disease.

The changes produced by the presence of the leptothrix in the circulatory apparatus consist especially:

1st. In the disoxygenation of the blood; the mycrophytes taking off the oxygen of the hematies.

2d. In the alterations of the blood mass by the toxical products furnished by the parasites.

3d. In the obliterations of the blood capillaries by the collections of bacteridies in regions where their multiplication has

* Neuere Torschungen uber die Ursachen des Milzbrandes. Von Delius. Ueber die experimentelle Erzeugung des Milzbrand-kutagiums aus den Hefpilzen, von Haus Buchner. (Journal de la Societe Agricole du Brabant, Hainaut, 1880, No. 47.)

† H. Toussaint, loc. cit., jo. 67.

‡ Hans Buchner.

|| It would be better, on account of the origin of the carbuncular mycrophyton being known, to call it *leptothrix* or *anthrax* instead of bacteridie. But while waiting for the time when science shall have agreed upon the name to be adopted, we shall use indifferently, the terms bacteridie, leptothrix, microbe etc., to designate the parasite of anthrax. For the disease itself, it might be of advantage to call it *bacteridiasis* or better *mucediniasis*, by analogy with *helminthiasis*, *phthisiasis* etc.

been more active, and greater principally in the parenchymatous organs and in the mucons and submucons structure of the intestines.*

The obliterations, which sometimes take place upon large surfaces, (*territories*) bring on disturbances in the general circulation. They furnish explanations of the internal *localizations*, which are observed in the different apparatus of the organism, especially in the form of infiltration of hemorrhagic centers, etc., as well as the disoxygenation of hematies, which explains the dark aspect of the blood. But independently of these essential changes, there are others, entirely local, which show themselves at the points through which the parasite has entered the animal economy. They are stimulated by the phlogogenous action of bacteridies, and excite externally the production of various enlargements, more or less well defined, sometimes diffused and with an œdematous character, at least in the beginning. These tumefactions form the *primitive* external *localizations*; they are the *malignant pustules* properly. If they are excised or destroyed *in time*, that is, before the entrance into the blood of the microbes they contain, the disease may be aborted. Frequently one may observe other *localizations*, also external, but *consecutive* to the introduction of the microphytes in the blood-mass, and whose presence may be largely attributed to the bacteridian embolisms found in the peripheric capillary system. The destruction or excision of these local *consecutive* alterations do not at all interfere with the progress of the general morbid process.

As long as the microbes remain only in the net-work of the structure, where they have been deposited, their multiplication is comparatively slow, because this is not sufficiently rich in oxygen. But it is different, when, through lymphatic blood-vessels and rupture of the capillaries, they enter the current of the blood. They then multiply rapidly and are transported to every point of the economy. This last multiplication takes place

*See the *Theorie generale de l'action des bacteridies dans le charbon*. M. Tousseint, loc. cit., chap. vi.

by scissiparity, and not by sporulation, or by the development of *germ corpuscles*, as might be supposed. *

The duration of the *incubation* is at least equal to the time which elapses between the introduction of the leptothrix into the tissues, and that when it enters the circulation. Experimental observation puts the maximum duration at eleven days. Ordinarily it is very short. By natural infection it is not possible accurately to define the time.

The diagnosis of anthrax, whatever external form it may assume, is established with *certainty* by the presence of the bacteridies in the organism. The media where these are found most abundant are the blood, the splenic pulp, the lymph of affected ganglions, the serosity which infiltrates the swelling, tumors and intestinal extravasations, and the urine. It is there that they must be looked for. They are found there under two conditions, namely, that of spores or germ-corpuscles and that of mycelium or *batonnets*. It is in the blood, the urine, and the pathological products that they develop themselves after the infection has become general. The mycophytes appear most abundant under the last form. They are easily detected in these two forms, with a magnifying power of 500 to 600.

The free spores or *micrococci* have the aspect of small vesicular dots, ovoid or spheroid, shying and strongly refringent.

The spores or germs, the products of the endogenesis, appear in the *living animal economy* only after a relatively long time. According to M. Toussaint† the sporulation in the liquids of culture requires about 48 hours; *a fortiori*, a longer time will be required in the media in the economy which are less favorable to the growth of bacteridie.

* Germs-corpuscles or spores find their condition *better* for growth and development *outside* of the organism, for instance in the *liquids of cultivation*. The mycophyte in the state of *bacteridie*, that is, such as found in the circulatory fluids, do not grow. It contains germs-corpuscles, but these do not change into bacteridies into the blood. However, whether the germs come from the bacteridies in the blood or directly from outside, when they are deposited into the tissues of an animal susceptible to anthrax, they are transformed into bacteridies and multiply there in the blood by fission.

Loc cit. p. 541

Bacteridies, properly so called, that is, the microbes in the state of mycelium, present themselves in the field of the microscope under the shape of short threads,* or of more or less flexuous batonnets extremely fine, cylindrical and immobile. These are formed of segments, few in number, 5 or 6 to the maximum. They have a length varying from 4 to 12 and sometimes 50 w. and a thickness of 8 to 1 w.†

Whether carbuncular bacteridies are introduced into the economy through internal passages or the external teguments, or that circumscribed alterations appear or not on the skin and in the subcutaneous cellular tissue, charbon is specified, *with* or *without localizations*. In fact, there are always *localizations*, only in this last condition, the lesions are visible.

External localizations, primitive or consecutive, affect different forms, among which are circumscribed tumors, more or less voluminous; diffused œdematous infiltrations, active from the first; gangrenous sloughs, ecchymotic spots, of various sizes, and bloody extravasations. They appear in the various regions of the body, even on the visible parts of the internal integument, (Glossanthrax.) They are thus analogous in the interior of the organism.

Works on pathology often describe, as so many different diseases, some external *localization* which are most specially manifest, hence the expressions that are so frequently found in the old nosography of charbon. To-day these have only a symptomatic value.

Whether the general alteration of the blood, and consequently the nervous system, is more or less rapid, or that the resistance of the patient is greater or less, anthrax appears under

*Observed in the *liquids* of *cultures*, carbuncular bacteridies have a much greater length and have different dispositions from those observed in the fluids taken directly from the patient, or from a fresh cadaver. M. Toussaint (Culture des Bacteridies, p. 53) has observed that in the prepared liquids, bacteridies are not constantly immobile, at least as long as they have not reached sufficient length to divide.

†A. Raillet, (Les bacteries, *Archives Veterinaires*, No. 12, 1880.) It is very probable that this extreme length of 50 w. has been observed only upon bacteridies in cultivation. Mr. Raillet is not specific upon that point.

the apoplectic form or runs its ordinary *course*.—In the first case there are never any external *localizations*; the death of the patient is too rapid to give them time to develop themselves.

We believe these are the most essential general characters of the disease succinctly gathered, as far as its nature and contagium are concerned. Further on we will take occasion to return to the etiology; but before this we have to consider concisely the external symptoms of the disease, under its most common forms. We shall complete this with a short exposé of the principal pathological alterations of the disease.

(*To be continued.*)

THE USE OF THE ELASTIC LIGATURE IN VETERINARY SURGERY.

By W. J. COATES, D.V.S.

Until within a comparatively short time the knife has generally been the means which the practitioners of veterinary medicine have employed for the removal of tumors, and this has been preferred by them rather than the employment of the elastic ligature.

The use of the elastic ligature is of comparatively late date, and while to its use some objections may be found, yet its general action is so benign and its after care rendered so easy, that it would seem that when this method can be employed no other would be considered.

There attends the application of an elastic ligature two or three conditions which may or may not show themselves; among these factor from decay of the tumor is oftentimes a very disagreeable accompaniment due to the necrosed material of the tumor and the liability to the formation and absorption of the septic matter from the decomposing material. Caustics are often preferred to ligatures, especially where there are small growths, because of the antiseptic properties which a great many of them possess, but when we begin to consider the pro and con of each

method it seems that ligation will receive more attention and trial.

The advisability of the use of the elastic ligature depends more or less upon the situation of the tumor, and as a consequence the dangers from excessive hemorrhage are to be taken into consideration.

If the tumor is so situated that dangerous hemorrhage can be controlled either by compression or some other means, it would be practicable to use the knife, because there is less time lost than with either caustic or ligature, and then too the animal suffers less than if ligation be adopted for its removal. If, however, the tumor is located so that hemorrhage is hard to control, the better mode of operation is to use the elastic ligature, especially if large and pedunculated. The result of such application is that within a short time, the tumor drops off, leaving a granulated surface which is as clearly cut as if by the knife, and which readily heals, any portion of the tumor remaining being easily sloughed off with caustics, the annoyance of hemorrhage being entirely done away with.

The elastic ligature is easily applied, requires but a few moments, and the after treatment nothing but leaving alone until it has accomplished the desired results.

Caustics are agents which destroy living tissues by virtue of their chemical affinity for one or more of its constituents, and are chiefly used to remove parts so much diseased as to be worthless or injurious, or to destroy heterologous growths, but where practicable the knife is preferable for this purpose. They also differ greatly in regard to the length of time necessary for the healing of the sore which results from their use; thus some produce a sore which never heals, while others are remarkable for the readiness with which they heal. In those which are tardy to heal the corrosive action of the caustic extends deeply into the subjacent and adjoining structures, and should be used with care lest extensive damage be done. Some caustics are good antiseptics and produce a slough, which eschar separates in from a few to many days.

Ligatures act by cutting off the blood supply, and at the same

time by their elasticity cutting through the tissue, or in other words strangulating the tumor, the result of which is a necrosed mass with a foetid odor. They must necessarily give rise to more or less pain to the patient, but leave a cleanly cut surface readily amenable to treatment; frequently the tumor shrivels up and does not appear to cause the animal any annoyance.

The mode of applying the ligature is to have an assistant extend or isolate the tumor or growth from the surrounding tissue and then wind the elastic round the base, taking in as much of the growth as possible, thereby avoiding the possibility of leaving much if any part remaining; then tie or secure the ends; within a comparatively short time the tumor will drop off, though in some cases a second ligature will have to be used.

The knife of course should be used where the structure is deep or the tumor not well defined and where hemorrhage can be easily controlled; it may be said, is it not better to dissect out the tumor and draw the skin together with sutures so that the liability of having a large cicatrix be avoided, but in how many cases does immediate union take place? In veterinary practice, the sutures give away and it is much better to treat from the start as an open wound, such as results from ligation, having an even granulating surface.

All these methods have been used at the American Veterinary Hospital, their application of course depending upon the character of the tumor. A few cases where the elastic ligature has been applied may be of interest to the readers of the REVIEW.

Early in May a black gelding was sent to the Hospital for treatment. He had on the near elbow a large fungoid growth the size of a child's head, which had been growing for months; an elastic ligature was firmly secured around the base of the growth where it was about $3\frac{1}{2}$ inches in diameter. The ligature cut about half way through in 48 hours. A second one was applied and in 40 hours the tumor disappeared, leaving a smooth granulating surface.

A dressing powder of sulph. copper, pulv. gentian and animal charcoal was prescribed and the horse resumed work; was returned in a few days with a thick scab formed by the application

of the powder; this was removed and milder powder used. The horse was seen several times after this, and when last seen the elbow had very nearly regained its normal appearance.

A grey gelding was brought to the free clinics for treatment. On examination the horse was found to have a melanotic tumor the size of a goose's egg on the inside of the sheath; an elastic ligature was applied and the owner directed to watch, and bring the tumor back when it dropped off. The horse was brought back in 48 hours, the owner saying that the tumor had dropped off and could not be found in the straw. On examining the sheath a very foetid mass, shriveled up to the size of a hickory nut, was found with the elastic ligature still around it, and which came off on being handled, leaving a small granulating surface.

A sorrel gelding in the hospital for other treatment was found to have a small epithelioma of the sheath, elongated in shape like a peanut; an elastic ligature was applied and the tumor dropped off in a few hours, leaving a wound which healed without difficulty.

CANINE PATHOLOGY.

BY R. H. HARRISON, D.V.S., House Surgeon American Veterinary College Hospital.

I. NEEDLE IN THE RECTUM.

An English pug, who had been brought to the clinic several times before, suffering with "morbus coxarium," was brought to the morning clinic lately, having great trouble in the act of defecation.

A piece of thread was hanging from the anus and was removed; forceps were then introduced into the rectum, to ascertain if any hardened feces or pieces of bone were present, thereby causing the difficulty. Nothing was found, but when the finger was introduced, the sharp point of a needle could be felt in the lateral wall of the rectum. A small puncture was made externally over the external tuberosity of the ischium, and the needle removed with a pair of forceps. The little fellow seemed

greatly relieved, and went running about as lively as possible. The difficulty passed away and the animal is now regular in all his habits.

A CASE OF *TINEA FAVOSA*.

A diminutive black and tan puppy was brought to the hospital one evening, presenting a very peculiar, ludicrous appearance. The whole body and especially the head was covered with bare spots varying from the size of a pea to a penny.

The gentleman who owned her said that these spots had appeared a week before, and she had gradually become worse; her mother and the rest of the litter were perfectly healthy. A little kitten had slept and played with the puppy since she was removed from her mother, and as the kitten was constantly trying to nurse her, it was thought that this produced the bare places, and so they were separated. The kitten was apparently healthy, and showed no signs of similar spots.

The bare spots when examined showed more or less redness and superficial inflammation in those just developing, followed by the appearance of several small pin-head-sized pale yellow crusts, seated about the hair follicles; others more advanced showed little cups (*favus cups*) circumscribed, circular in shape and possessing a marked umbilication in their centres, presenting a true honeycomb appearance. The cups latest developed were made up of a series of concentric, compactly arranged rings; their consistence was firm, but friable to pressure, crumbling between the fingers; a peculiar odor was manifest, like that of mice or stale straw.

Desiring to confirm the diagnosis by microscopical examination, the gentleman kindly consented to leave the puppy with us for a few days.

A small fragment of the crust was detached and placed under the microscope and the following condition was observed:

The crust was made up entirely of fungus, composed of a porous mass and possessed of a pale watery color. Each crust was enveloped in a capsule or stroma, formed of a finely granular amorphous material. The growth consisted of both mycelium

and spores in great quantity and in all stages of development. The mycelium appeared made up of narrow, flattened tubes, which ramified in all directions without any definite arrangement; some were straight, others crooked and branching in an irregular manner; others were irregularly jointed and in some places appeared little spaces filled with granules and young spores. The treatment consisted in the application of diluted tincture iodine, and keeping the parts clean by frequent baths of warm water and castile soap. After a few days' treatment, the crusts scaled off and the puppy was discharged with directions to keep the parts clean and use the iodine for a few days, and following it with a simple ointment to allay irritation.

RENAL CALCULUS.

A valuable English mastiff, twelve years old, was sent to the hospital from the country. The only history that could be obtained was that he had passed about six months previously large quantities of worms, and since had been losing flesh and growing feeble.

When admitted, no special symptoms were manifest; general debility was present, but all the functions were apparently normally performed.

He was placed on stimulants and tonics, given a nutritious diet and regular exercise, but did not seem to improve.

On the morning of the fifth day after his arrival, when the hospital visit was paid, he was found down, insensible, gasping for breath and expired shortly afterwards without a struggle.

On post mortem examination, the organs contained in the thoracic cavity were normal. The intestines contained but little food and two tape worms* forty inches long were found. The bladder was distended with urine, and its mucous membrane showed lesions of chronic cystitis.

The left kidney was smaller than normal, and on section showed a calculus filling up the entire pelvis and extending into the ureter; it weighed 240 gr. and was composed chiefly of oxalates of lime.

**Tenia Serrata*.

The right kidney was enlarged to about twice its normal size, and was diseased. A section was sent to Dr. Peabody, the eminent pathologist to the New York Hospital, who very kindly examined it under the microscope, and reported as follows:

“There are areas in which the intertubular connective tissue is markedly increased. In these areas there are many tubes that are atrophied by pressure in great part, and some traces of pre-existing tubes that have almost disappeared. In some of these places there are many cysts, caused by dilatation of the tubes; this dilatation is due to constriction of the tube below it. The dilated tubes (forming cysts) are lined by flat epithelium and filled by hyaline material; many contain hyaline cysts. In some places between the tubes are large collections of young cells, which indicate active interstitial inflammation. I should consider the case one of chronic diffused nephritis. The lesions at present to be seen are only those of chronic interstitial nephritis.”

A peculiarity of this case is that no symptoms that would lead to an idea of the trouble were manifest.

TUBERCULOUS NEPHRITIS.

A little Scotch terrier was brought to the hospital clinic one morning in great distress. The owner said that the day before he had noticed that the dog had made frequent ineffectual attempts to micturate. Toward evening he became uneasy, would strain violently and utter piercing cries. He became worse during the night, and in the morning seemed quite exhausted. On manipulation, the bladder could be felt distended with urine, the penis was inflamed and very tender to pressure, there was also slight tenderness over the loins, complete loss of appetite, nervous exhaustion, and a slight rise in temperature. While at the hospital, the dog micturated several times; only a few drops, however, came away; this was attended with violent straining and much pain.

A calculus, or an enlarged prostrate gland was thought to be the cause of the difficulty, and a grave prognosis was given.

A soothing injection was thrown into the urethra by a hypodermic syringe, and belladonna given internally. The animal

died during the day in convulsions, and was brought to the college for post mortem examination.

Post mortem.—The lungs showed tubercles, especially marked on the right. The kidneys were studded over with small whitish nodules and streaks, which were surrounded by congested and hemorrhagic tissue. A section which was kindly examined under the microscope by Dr. Welch, pathologist to Bellevue Medical College, revealed that the nodules were composed essentially of a dense accumulation of lymphoid cells, which had led to destruction of the uriniferous tubules; the infiltration of lymphoid cells extended from the nodules into the surrounding tissue between the tubes. In many places there was an infiltration with similar cells, where no abnormality could be detected.

The nodules and streaks might have been considered as minute abscesses, and the disease process might be called one of acute interstitial or suppurative nephritis, for sometimes apparent tubercles present under the microscope the structure of minute abscesses, instead of the tubercles, but, finding true tubercles in the lungs, it would be preferable to consider it tuberculous rather than suppurative nephritis.

The prostate gland was enlarged slightly. The bladder was distended with urine to its greatest capacity, and its mucous membrane was slightly congested. An attempt was made to find out the cause, by making a careful examination of the milk which they were in the habit of feeding the dog, but tuberculosis could not be traced, for the milk came from a distance in the country and was a mixture of the milk of several cows, and to go and examine the cows was impracticable.

EPITHELIOMA OF THE TAIL AND ANUS.

A large bloodhound, one of the largest of its kind, was sent to us from Staten Island; he was thought to be affected with hemorrhoids.

When examined, a large tumor, the size of a large hen's egg, was found situated on the lateral surface of the tail, near its base. Its surface was excoriated and bleeding. It was well defined and bulging from the surface of the skin. Another was seated under

the tail, at its base, three more were involving the anus, one as large as a lady apple was situated superiorly, another to the left, and the third, also to the left, but more inferior. They were all well defined, were of long standing, and had given rise to great trouble in defecation. Their external surface was nodulated, denuded of hair, hard to the feel, and here and there excoriated and bleeding. A diagnosis was made of cancerous tumor, and their removal was advised. The chances of success were considered favorable.

With the owner's consent, after proper preparation, the animal was given an anæsthetic and the tumors dissected out. There was but slight capillary hemorrhage, which was easily arrested by torsion. Continued sutures were applied to the wounds formed by the removal of the two largest tumors, and the others were left alone. The antiseptic spray of carbolic solution was used during the operation and during the healing process.

The wounds around the anus healed by first intention. In the other, the sutures sloughed and were reapplied, but as this occurred a second time, strips of linen loaded with collodion were applied. These the dog tore off, and a bandage was then used, placing it at the base of the tail, taking in both wounds and secured to a kind of harness passed over the back, belly and neck. This worked nicely for a while, but as the wounds began to heal up, it was torn off. The wounds were then left alone, with the exception of an occasional cauterization of their edges with nitrate of silver.

In twenty-one days from the date of the operation, all the wounds had healed, and the patient discharged. The act of defecation was naturally performed, and no new growths have since appeared.

A section of one of the tumors was kindly examined by Dr. Welch, of Bellevue Medical College, who reports as follows:

"The tumor is an epithelial cancer. It consists of large, frequently anastomosing alveoli, filled with cells resembling flat epithelial cells. In some places, so-called pearl globules, composed of horny, concentrically arranged flat cells are present."

EDITORIAL.

ANTHRAX—ITS PROPHYLAXY.

We have at different times, in the pages of the *REVIEW*, presented our readers with the various experiments that were carried on by Mr. Pasteur and his assistants, Messrs. Chamberland and Roux, upon the virus of contagious diseases, and especially of anthrax. It is thus that we have made our American colleagues acquainted with the action of bacteridies in the development of anthrax, with the physico-chemical and physiological conditions of their existence; with the manner in which their germs were brought back to the surface of the ground by the earth-worms, as also how the virulency of the bacteridie could be reduced so that a true vaccine matter could be inoculated, and animals be thus protected from the effects of the most virulent inoculation afterwards.

These magnificent and highly valuable observations were not, however, admitted by all. Others engaged in similar investigations denied, step by step, the correctness of the discoveries of Mr. Pasteur and his co-laborers; and amongst those adversaries to the demonstrations of Mr. Pasteur none prove more stubborn than Mr. Colin, the eminent Professor of Physiology at Alfort. Once already, in relation to the possibility of communicating anthrax to fowl, has Mr. Colin been obliged to acknowledge his errors, and no doubt he will have to do it again when time has proved, as in fact it has already done, that anthrax has lost much of its dangers by the means now afforded to owners of cattle, that is, prophylactic inoculation.

The experiments of Mr. Pasteur were not tried extensively at first, and for this reason the positive evidence of their validity was doubted; but since the experiments at Pouilly-le-Fort, there can be no more doubt as to their value. We reprint in this month's issue the programme of these experiments, with the magnificent results obtained, results which were already announced by Mr. Pasteur before any of the inoculations had been made.

NATIONAL CATTLE COMMISSION.

We extract from one of our daily papers a notice giving information of the establishment of a National Cattle Commission appointed by the Secretary of the Treasury.

In the Commission will be found the names of Prof. Law and Dr. E. T. Thayer, both of whom are familiar to the people at large, and are well known to the profession. Both have been engaged in the work of fighting the invasion of contagious pleuropneumonia, and as the Commission is reported to especially have in view this form of disease, we may look for some good work in that direction.

Dr. C. P. Lyman, as an officer of the Department of Agriculture, Prof. Law and Dr. E. F. Thayer, as Commissioners of the Secretary of the Treasury—with such men as *appointees of the General Government*, who will not accept this as evidence of the immense progress that veterinary medicine has made in the United States within the last few years.

VETERINARIAN WANTED.

We publish to-day a letter from a gentleman in Pennsylvania, asking to have recommended to him a veterinary surgeon to begin practice in Pittsburg. At the same time the letter was sent to the *Turf, Field and Farm*, who kindly referred it to us, we had also received one from the same person.

This is but one of many such which we receive, and serves as another indication of the growing estimation in which educated veterinarians are held. No doubt Pittsburg, like many other cities in the Union, has some practitioners of more or less ability, but the day has come when these parties will no more answer, and when educated veterinary surgeons will be the only ones who will find occupation and command the confidence of the people. We hope some young graduate will take notice of the letter and embrace the good opportunity. The REVIEW is the best medium for such kind of advertisements, and we will hereafter publish

any other request which may come to us, thus giving valuable information to those who may be in search of good locations for practice.

REPORTS OF CASES.

ŒSOPHAGOTOMY AND RECOVERY.

BY J. F. WINCHESTER, D.V.S.

Was called at noon July 24, 1878, to see a roan mare with the following history: Upon being backed out of her stall to be watered she picked up an apple from the floor and, without stopping to masticate it, made a rush for the trough and took a swallow of water, the apple at the same time going down and choking her, causing a severe cough and ptyalism. The foreign body was felt in the superior part of the œsophagus, and by the manipulations of the groom and the exertions of the horse was made to pass down the œsophagus, beyond the feeling of the groom, who then thought the mare to be all right, as the distressing cough had ceased, and but little saliva was running from the mouth. On trying to drink, however, the horse would take a couple of swallows, when the water would soon return through the nostrils, accompanied by a twitching of the neck.

After hearing the groom's story, I at once diagnosed choking due to the apple, and that that body was lodged in the thoracic portion of the œsophagus.

Symptoms.—She was standing with neck stretched, and would have severe clonic spasms of the inferior cervical muscles. During the intervals of rest she would roll and eat some grass, as she had been led out on the lawn, which would return through the nostrils after a short time.

Treatment.—Under the circumstances I advised an operation, but the owner did not think he would take his chances just then. I gave some olive oil, thinking it might lubricate the parts and allow the apple to pass on, but it also returned on the recurrence of the spasms.

That evening I was again called in a great hurry and told that

I might operate if I still considered it advisable. So I had the horse led into the barn, and with the assistance of the groom, who held a lamp over my shoulder, I began the operation, without placing any restraint upon the animal, and did not require any during the operation. I cut through the skin on the left side and the middle third of the neck, dissected through the sub cutaneous muscle (of the neck), separated the jugular vein from the cellular tissue, pushed aside the omo-hyoideus muscle, then separating the carotid artery, the pneumogastric and sympathetic nerves from the connective tissue, and exposed the œsophagus attached to the trachea, which I opened on its superior face after separating the trachea and bringing it outside the opening.

I passed a probang and could feel the apple at or very near the cardiac opening of the stomach, but could not move it owing to the contraction of the muscular coat of the œsophagus. So I left the beast for the night, and the next morning, with the assistance of J. S. Saunders, D.V.S., of Boston, the apple was pushed into the stomach. The wound in the œsophagus was then sewed with a continuous suture, bringing the mucous membrane in apposition and leaving the ends of the suture outside; the outer wound was brought together with an interrupted suture and then treated as a simple wound, leaving orders that the beast be fed per rectum with cooked food, and kept tied up so she could not rub her neck.

July 25.—Saliva escapes from the wound, but very little swelling.

July 26.—Discharge of saliva as abundant as last night. The animal broke her halter and rubbed her neck, breaking away most of the sutures, and the parts are swollen quite badly, but can get a couple of stitches in the œsophagus. She was placed in a sling and the same treatment continued. At the end of the week her rectum became so irritable that she could not retain her food, so I put a rubber pipe about $\frac{1}{4}$ inch in diameter and about $1\frac{1}{2}$ feet long into the œsophagus, with a funnel in the end, through which she was fed five times in twenty-four hours. She has lost considerable flesh, but looks bright and has a good pulse; her bowels do not act very regularly, so I give her enemas.

Aug. 5.—Her bowels not responding to enemata, I put her under *nux vomica*, and in five days she had some feces pass her. The wound is gradually healing, the discharge of saliva still continuing, but less in amount.

Aug. 12.—Doing as well as could be expected, bowels being in good condition. Stop *nux vomica*, but other treatment the same.

Sept. 1.—The wound having healed, I removed the rubber pipe from the œsophagus, as she can swallow liquid food by taking the precaution of putting a pad over the wound, but am obliged to pour the food from a bottle, as she will not drink from a pail.

Sept. 6.—She will now drink without any inconvenience from a bucket, but still have to use the pad over the wound, which is gradually healing, that of the œsophagus almost closed.

Sept. 15.—Does not require the use of the pad over the wound while drinking. Since the operation the food has been in a fluid form, but now she receives cooked oats and meal with what grass she will eat. Give her exercise now every day and removed the slings.

Oct. 1.—Can eat dry oats but not hay, so she is turned out to pasture and allowed one month to run, after which she was able to eat her usual food; light work was then ordered, and under careful management she soon regained her good condition, doing her owner good service.

TARSAL TENOTOMY.

PROVIDENCE, R. I., June 29.

Editor American Veterinary Review:

DEAR SIR:—You will find below a notice* from one of the local papers of this city of June 24th, 1881, of an operation per-

* Dr. George H. Bailey, V. S., of Portland, Me., one of the judges at the races, made a very successful operation of tarsal-tenotomy for spavin, at Hobbs & Tuttle's stables, yesterday, upon a valuable horse, in the presence of Drs. Scrutton and Burt and a large number of turf-men, in attendance at the races. The operation is almost a painless one for the animal, and is fast superceeding the old and much more painful one of firing and blistering. The operation was performed to show Rhode Island horsemen how they can save their favorite steppers.

formed by Dr. Geo. H. Bailey of Portland, Me., and as it was done to show us poor R. I. people how to save their favorite steppers, I will report the result of four cases I have operated upon, if you think them of sufficient interest to insert in the REVIEW; but before this, I considered them an operation so simple, as to be not worth the space.

CASE No. 1.

June 10th, 1878.—A bay mare belonging to Mr. Hall, of Fall River, 10 years old, lame in off hind leg, had been so for some time before he got her; had been fired and blistered twice both by points and lines; did not drive out her lameness; had quite a large deposit over lower portion of the hock; was thrown on off side, an incision about $1\frac{1}{2}$ inches long made in an oblique direction from forwards backwards and downwards over the course of the internal branch of the tendon of the muscular portion of the flexor metatarsus. After the skin and aponeurotic tissue over the tendon had been well separated, I flexed the lower portion of the leg at the hock and with a large curved needle raised the tendon, then with a curved bistoury separated it, cutting downwards and backwards towards the attachment as much as possible; washed the wound with a solution of carbolic acid, one to forty; took one stitch and let the mare up, applied a dressing of oakum and carbolic solution, held in place by a light cotton bandage, rolled from both ends in a figure eight. The animal stood well.

June 12th.—Wound healthy. Dressed with solution of chloride of zinc, and same kind of dressing as before.

June 14th.—Wound healthy, slight suppuration. Removed the stitch, dressed with chloride of zinc and a solution of carbolic acid and aloes.

June 17th.—Looks well, wound nearly closed. Dressed as before.

June 21st.—Wound closed. Walked from stall; no lameness.

June 28th.—Turned out to grass. Was lame after $\frac{1}{2}$ mile walk. Was at pasture for four weeks; then was put to work, and showed no lameness, and in about three months was sold, and I lost sight of her.

CASE No. 2.

Dec. 9th, 1878.—Brown gelding, 9 or 10 years old, belonging to a Mr. Harrison, of Johnson, was left at my stable. Had been fired, &c. Had a deposit on nigh hind leg. Was cast and operated on as in case No. 1. Found tendon somewhat pressed out of its normal position, being about $\frac{1}{2}$ inch upwards, and more in a circular than in an oblique direction; after separation of tendon, animal got up, and wound dressed as in case 1.

Dec. 11th.—Animal in some pain, temperature 102, pulse 50, leg swollen and quite sore to the touch. Dressed with carbolic acid solution and tinct. myrrh.

Dec. 12th.—Temperature 103, pulse 60, refuses all food, holds leg from the floor, all the time placed in slings; leg hot, swollen and painful; wound looked bad. Dressed with solution of chloride of zinc, applied irrigation of icewater and gave one oz. doses of laudanum every six hours.

Dec. 13th and 14th.—Animal about the same. Gave the same treatment.

Dec. 15th.—Temp. 104, pulse 72, respiration 24. Synovial discharge mixed with pus. Carbolic acid dressing used; irrigation continued. The animal continued about the same until the 25th, when it was destroyed, as it would not eat, having received stimulants and tonics since the 15th. I made a dissection of the hock and found the articular surface of all the small bones, as well as the superior surface of the metatarsal, ulcerated; the small bones were not ankylosed together.

CASE No. 3.

Aug. 19th, 1879.—Black mare 12 years old, belonging to Mr. Whipple, of Georgeville, lame on nigh hind leg. Had been fired twice and blistered quite a number of times; had been lame for three years; would drive almost out of his lameness. Was operated on as in the other cases, dressed with carbolic solution and lint.

Aug. 21st.—Wound looked well, temp. 100, pulse 40. Dressed as before.

Aug. 23d.—Removed stitch; wound almost closed. Dressed as before.

Aug. 25th.—Pulse and temperature normal. Dressed the wound with solution of chloride of zinc and pulverized Fuller's earth; no bandage. Walked from stable and showed no lameness; was put to grass for two weeks, then went to work, and worked without lameness until June, 1880, when she died with colic. I obtained the hock for dissection, found all the small bones ankylosed together and to the head of the metatarsal bone.

CASE No. 4.

May 12th, 1880.—Large brown mare, worked on a farm in Adamsville, belonged to Mr. Holden. I had fired the mare twice, two years before; she continued to go lame and had been a year before I fired her. Operated on her as in the other three cases.

May 14th.—Dressed as before; treatment as in case No. 1 and 3; in a week was turned out, and was not lame; in two weeks was led home and put to work for three months or more; went sound and was traded.

ANOTHER ONE.

The animal was given me to destroy and I operated on the hock. She was an old mare, had been fired and blistered but always went lame; had been so for four or five years; worked on a farm very well. I operated on and dressed as in the rest of the cases. I had swelling on the second day and then I treated as in case No. 2. Finally synovitis set in. I kept her 12 days and then destroyed her. On dissecting the hock, I found as in case 2, ulcerations on the articular surface, and the small bones were not ankylosed together.

I have examined quite a number of hocks which I have obtained from the dead yard, and have found that in those with large deposits on the lower portion and situated well over the inside, we are more apt to have the small bones ankylosed than in those that are more forward, and that in hocks having large deposits on them we will quite often find the branch of the tendon pushed from its normal oblique course upwards in such a way that it has the appearance of running in a circular direction from its attachment to the bifurcation. If any one will take the trouble to dissect a few hocks, or to examine some that have been

macerated, or other ways prepared, and see where the groove made by the tendon runs, and compare with a hock that has no deposit on it, they will, I think, see it is so. For favorable results I think we must have complete ankylosis of the cuneiforms to the head of the metatarsal; for I think we will not have a deposit large enough to warrant an operation, without we have ulcerations on the articular surfaces of the metatarsal and small bones. I think if you look at your specimens, you will find it is so. I think when we are satisfied we have complete ankylosis of those bones and the lameness is due to pressure of the tendon on the periosteum, we will have a successful operation; while if this is not the case, we will not. I also think, the lower down and the nearer the attachment of the tendon to the small cuneiform bone we make our incision and division of the tendon, the better our success, while the higher up and the more towards the forward portion of the hock, or, as I might say, the nearer the capsular covering of the tibio tarsal articulation we get, the more chances of synovitis and a failure.

Hoping to have others express their views on this subject so to save other favorite steppers.

I am yours, &c.,

C. H. PEABODY, D.V.S.

PROGRAMME AND RESULTS OF EXPERIMENTS

UPON VACCINATION OF ANTHRAX AT THE FARM OF POUILLY-LE-FORT.

BY M. PASTEUR.

The Society of Agriculture of Melun having offered to M. Pasteur, to practically test the value of the experiments made by him and his assistants relating to anthrax, the following programme of experiments relating to preventive vaccination was agreed upon:

1st. The Agricultural Society of Melun places at the disposition of Mr. Pasteur sixty sheep.

2d. Ten of these shall receive no treatment and be kept as proofs.

3d. Twenty-five shall receive two vaccinal inoculations from twelve to fifteen days apart with carbuncular virus.

4th. These twenty-five sheep will, with the remaining twenty-five, be inoculated twelve or fifteen days after with very violent virus.

The unvaccinated twenty-five sheep shall all die, the twenty-five vaccinated shall resist the disease, and will afterwards be compared with the ten reserved as proofs, so as to demonstrate that the vaccinations have not prevented them, after a certain time, from returning to their normal state.

5th. After the inoculation of the very violent virus to the two series of twenty-five vaccinated and unvaccinated sheep, the fifty will remain in the same barn; one lot being distinguished from the other by a mark made on the ear of the twenty-five vaccinated.

6th. The ten reserved for proofs always to remain by themselves, so as not to be exposed to the contagion of the diseased ones.

7th. All the sheep which shall die to be buried one by one in separate spots, close to each other, and situated in a fenced plot.

8th. In the month of May, 1882, twenty-five new sheep—that is, not having been experimented upon—shall be placed in said plot.

When these twenty-five sheep shall have eaten the grass of that ground, they will be fed on the same with grass thrown upon it. Of these, several will become spontaneously affected through the carbuncular germs which shall be brought back to the surface by the earth worms, and shall die with anthrax. This experiment can be stopped after a week or two, as soon as a few shall have died, so as to save a useless loss of animals, the contagion being sufficiently proved by the death of a few. The Society will be at liberty to act on this last suggestion.

9th. Twenty-five other sheep will be placed near the fenced spot, at some meters from it, in a place where no carbuncular

animals had ever been buried, so as to prove that none will die from anthrax. This plot of ground will also be fenced and of the same dimension as the other.

The President of the Society having expressed the desire that the experiments be made also upon cows, Mr. Pasteur answered that he was willing to test them, though the experiments of vaccinations upon cows were not as advanced as those on sheep, and that it might be possible that the results would not be as positive. At any rate Mr. Pasteur proposed that ten cows be placed at his disposition, that six should be vaccinated at the same time as the sheep and four should remain unvaccinated—after the vaccination the ten cows will simultaneously be inoculated with very virulent virus. The six vaccinated cows will not be sick, the four unvaccinated shall perish or at least shall all be very sick. With the dead cows the experiment of reproducing the contagion by the earth can be carried out as it was for the sheep.

The experiments shall begin on the fifth of May and likely be terminated in the first part of June. * * * * *

Mr. Pasteur made the report of the above experiment as follows :

“ The experiments began on the 5th of May, in the commune of Pouilly-le-Fort, on Mr. Rossignol’s farm.

Upon request of the Agricultural Society two sheep were replaced by two goats and as no condition of age, sex or breed had been proposed, the fifty-eight sheep were of different ages, sex and breed. The ten bovines were represented by eight cows, one ox and a bull.

Upon the 5th of May, 1881, with a syringe of Pravaz, twenty-four sheep, one goat and six cows were inoculated with five drops of culture of attenuated virus.

On the 17th they received another inoculation of another culture, also attenuated, but more virulent than the first.

On the 31st of May, an inoculation of very virulent virus was made, which was to decide as to the efficiency of the preventive made on the 5th and the 17th. To effect this, these thirty-one vaccinated and twenty-four sheep, one goat and four cows were inoculated.

None of these last had received any previous treatment.

The very virulent virus, which was in use the 31st of May, was regenerated by germs corpuscles of the carbuncular parasite preserved in my laboratory since the 21st of March, 1877.

So as to render the experiment more comparative, one vaccinated was inoculated alternately with an unvaccinated animal. The operation ended, an engagement to meet was made, by all persons present, upon the 2d of June, only forty-eight hours after the beginning of the general virulent inoculation.

At the time of meeting, the 2d of June, the results were wonderful, the twenty-four sheep, the goat and six cows which had been inoculated had all the appearances of perfect health ; on the contrary, twenty-one sheep and the goat which had not been vaccinated, were dead with anthrax ; two other sheep, unvaccinated, died before us, and the last late in the day.

The unvaccinated cows were not dead. We have already shown that cows are not so likely to die from anthrax as sheep, but all had voluminous œdema around the point of inoculation, behind the ear. Some of these swellings reached, in the following days, such a size that they contained several liters of liquids, their temperature raised three degrees. The vaccinated cows had no elevation of temperature, no enlargement, no diminution of appetite. This renders the success of the experiment as complete for the cows as it was for the sheep.

On the 3d of June, a vaccinated ewe died. In the opinion of the veterinarians who made the post mortem, the death was due to the death of the foetus she carried.

NATIONAL CATTLE COMMISSION.—A Washington despatch states that under authority conferred by the Sundry Civil Appropriation bill, the Secretary of the Treasury has appointed James Law of Ithaca, N. Y., James H. Sanders of Chicago, and E. F. Thayer of West Newton, Mass., a commission, to be known as "The Treasury Cattle Commission." The Commission has been instructed to meet at Washington as soon as convenient for the purpose of adopting such regulations as may be deemed proper,

with a view, it is stated, to investigate all cases of pleuro-pneumonia in neat cattle, especially along the dividing line of the United States and Canada, and along the lines of transportation from all parts of the United States to the ports from which cattle are exported, and perform other duties prescribed by the Secretary with reference to disease, in order that cattle shipped from the United States to foreign ports may be known and certified to be free therefrom.

EXTRACTS FROM FOREIGN JOURNALS.

DENTIGEROUS CYST IN A FILLY.

Prof. Degive, in Brussels, reports an extremely rare and interesting case of a dentigerous cyst on the base of the ear of a filly:

On June 5th, 1879, there was brought to the clinic, a two-year old filly, of the draught horse class, which had all the pathognomic symptoms of a fistulous ear due to a dentigerous cyst. On the free margin at the base of the concha auris was a fistulous opening from which oozed a tenacious fluid, and under the skin could be felt a diffused, indurated bone-like enlargement. The animal was cast. The skin and periosteum were divided and the dental mass laid bare. The removal of the same by means of a gouge especially constructed for this purpose was not attended with much difficulty. At first a larger portion lying in a forward direction was successfully detached, and then a smaller, deeper seated, irregular mass was removed; the latter crumbled into fragments which had to be extricated one by one with a forceps. Both portions consisted of several incomplete imperfectly formed molar teeth. Upon examining the wound by introducing the finger, Degive felt at the bottom of the same a soft tissue which was easily displaced, but after removing the finger it readily receded and projected over the margin of the bone. This soft tissue could have been nothing else than the exposed brain, and instead of the favorable prognosis that was previously declared, a trau-

matic phrenitis set in on the second day, which, after the lapse of four days, terminated fatally.

The autopsy revealed a general congestion of the brain, with softening and putrid metamorphosis of a considerable portion of the same in the vicinity of an oblong opening directly in front of the tuberos portion of the temporal bone. The upper rarified border of the opening was everted; the other likewise very thin border was directed toward the eucephalon. The opening itself was closed in consequence of the atrophied dura mater, which was perforated in the centre; the rent had irregular edges, with fragments of dentine still attached. At the bottom of the wound a reddish gray purulent fluid was deposited, in which floated fine particles of debris brain substance. The exterior of the petrous temporal bone portrayed a round depression which was surrounded by a circular wall, and in this depression the bulk of the dentigerous cyst was lodged.—*From the Repertorium der Thierheilkunde, Heft II.*, 1881.

WOUND IN THE FLANK BY THE SHAFT OF A WAGON.

BY M. PALAT.

This case is that of a horse which collided with a carriage coming in an opposite direction from that which he was traveling. The blow was very powerful, and the shaft penetrated in the right flank to a great depth, throwing the horse down and giving rise to a large hemorrhage.

The wound was first sewed up, and bathed with astringent cooling lotions. On the arrival of M. Palat, he found the animal presenting a peculiar immobility, with his hind legs stretched backwards, and unwilling to move. On the upper part of the right flank, a little above and in front of the hips, there was a wound closed by stitches, transversely, and of a depth difficult then to appreciate. The thigh, hips, and right flank were enormously swollen. According to the reports made, it is believed that the sub-peritoneal adipose tissue had been torn, as parts of it were removed when the wound was first dressed.

Fearing peritonitis, or traumatic gangrene, an unfavorable prognosis was made, and treatment of aloetic carbolized water by injections was prescribed, with light feeding.

The next day the swelling had increased and the animal was dull and almost without appetite. Abundant bloody discharges from the wound occurred at each movement of the animal, and there was great stiffness in walking. Same treatment. At the following visit the animal seemed improved. The stitches of the wound being cut, allowed an inspection which shewed that the shaft had penetrated to a depth of 17 centimeters. The wound extended from the front of the pelvis towards the opposite side. The skin was loose downwards to the stifle joint. A counter opening was made at this point, and the same treatment continued. By degrees the bad smell of the wound disappeared, and the condition of the patient slowly improved.

Some two weeks after the injury a mass of muscular fibres, weighing 260 grammes, was cut off, and some days later a small piece of the point of the ilium sloughed away. After forty-seven days of treatment, the wound was entirely healed and the animal was able to resume his work.—*Recueil de Medecine Veter.*

RENAL CALCULI IN A BITCH.

BY M. P. MEGNIN.

This is the report of a post mortem made on a bitch in which calculi were found in the pelvis of the kidneys. They were larger than the natural size of the pelvis, which was in consequence much distended, the medullary portion of the organ being destroyed, the cervical portion being almost all that remained of the organ. One of the calculi, that of the right kidney, weighed 7 grammes, and measured 28 millimeters in length, 21 in width, and 15 in thickness. It was roughly pyramidal, with faces and angles irregularly rounded, and having at its apex a small projection corresponding to the hilus of the kidney.

The other calculus weighed 6 grammes, and had a crescent shape with extremities blunt and rounded. It had also a little

prolongation to the hilus of the kidney. In fact, it represented quite well the shape of the cavity of the organ.

The surface of these calculi was rough and brittle. The scraping of the faces gave a sand which under the microscope was found of amorphous granulation and prismatic crystals of phosphatic ammoniaco-magnesian salts. According to the history obtained, this affection had dated from a period of four years.

During one year she ate thousands of small rabbits, which she caught in the woods. After that she seemed to suffer excessively, sometimes walking for two or three days without stopping, walking alongside the walls as if being blind, and without taking any food, either solid or liquid. These accessions occurred at irregular intervals, almost weekly, then every three or four months; she would then drop exhausted, and after a few days seem to be entirely well.

In the last two years the spells were less frequent. It was thought that those she had had came after eating bones? * * * She was always constipated; the fœces looking like a yellowish plasterer's dust. She ate much meat as well as bone, but no vegetable, and she was always very thirsty, refusing milk, but being very fond of water.

Eight months ago she had three or four pups, who died in a few days. After this litter, her urine became very offensive in odor. At the time of death she was again pregnant. One of her kidneys performed its functions well, as the bladder retained its dimensions and aspect—*Recueil de Medecine Veter.*

ELASTIC LIGATURE.

By M. P. CAGNY.

In a note on this subject presented at the Central Society of Veterinary Medicine, the author says:

“*As an hemostatic.*—In cases of wounds of the extremities, in the horse, for instance, when other means of dressings are not at hand, an elastic cord, moderately tightened, seemed to me superior to any other compressive bandage that can be improvised. I tried it only once in a horse, but oftener in the ox.

Several times I have seen cattle, which, while trying to run away, had been bitten in the tail by dogs, leaving wounds which bled freely. In one of these cases, for instance, two deep wounds had been made on each side of the tail, at about its middle, and severe hemorrhage was going on. An elastic ligature slightly tight was put on, and the bleeding stopped. Two hours later the dressing was removed and the hemorrhage returned, being brought on by the motion of the tail, when the elastic band was again applied and left for twenty-four hours. On being removed again, the hemorrhage returned. Another ligature, tighter, was applied and left several days. This was followed by a sloughing of the tail. This result induced me to use the elastic cord in cases of amputation.

“*Amputations.*—Some dogs have at the posterior face of the metacarpi, supplementary fingers, whose claws do not rest on the ground, and do not wear. These get broken and torn, giving rise to somewhat serious lameness. In these cases it becomes necessary to amputate the finger, right at its origin.

“Formerly a simple section was made, but was followed by hemorrhage more or less annoying than dangerous. To avoid this I have used the elastic ligature.

“This claw is united to the others only by the skin. After a few days of constriction, by slight torsion, it easily became loose, without losing one drop of blood. * * * Mr. Goubaux, some time ago, made a report upon the amputation of supplementary members in our domestic animals, (horses, cows, sheep.) I believe that the elastic ligature ought to be tried in those cases.

“*Amputation of the tail of a horse.*—In this operation, the most difficult step is to stop the hemorrhage. Nervous, irritable horses resist the actual cauterization generally used, and it often requires several applications before the bleeding stops. Instead of this, I applied a ligature well tightened, as near as possible between two of the caudal vertebra, previous to amputation, which is then done as usual. After a week, the elastic cord was removed, and in a short time the animal was ready to resume his work.

“In the dog, the same operation can be performed.”—*Recueil de Medecine Veterinaire.*

CROUPAL ANGINA IN THE HORSE. RECOVERY.

BY M. TARGUE.

On the 31st of December, 1879, the author of this report was called to attend a small horse, a chestnut bay, of a nervous, sanguineous temperament. At his first visit he found the animal in great suffering, with very difficult respiration, anxious looks, widely distended nostrils, and griped countenance; the animal roared with difficulty and continuously. Cough frequent, strong and repeated. No enlargement of the guttural and parotid regions. Sensibility of the larynx extreme, pulse increased, mucous membrane highly injected.

Diagnosis.—Membranous croupal angina. According to the history of the case, the animal has been exposed to severe drafts.

Prognosis.—Serious.

Treatment.—Though tracheotomy seems indicated, I decided to postpone it, and prescribed the following:

Removal by bleeding, of 3 pounds of blood; emollient fumigations; gargles of alum and chlorate of potass; soothing and expectorating electuary, with kermes, gum ammoniac, extracts of hyosciamus and belladonna. Externally, mustard applications.

The next day the animal was much worse; cough more continual, respiration more difficult, asphyxia threatening.

After explaining to the owner the danger of his animal, tracheotomy was decided upon and performed. As the skin was about to be divided, the animal was taken with a sudden cough, and threw up, after five or six coughing spells, three false membranes of a greyish white color, measuring about 15 centimetres in length, 2 in width, and two or three millimitres in thickness.

On examination, some of these proved to be essentially formed of a fibrinous net work, somewhat infiltrated with small bulbs of air upon one of their faces. Their resistance is quite strong.

As soon as they were expelled, the respiration returned to its normal condition, and the recovery seemed to be instantaneous.—*Annales de Medecine Veterinaire.*

GAUCHO OF SPANISH REPUBLICS OF AMERICA.

The *Cultur-Historische Analecta*, in Prof. Falke's *Jahrbuecher*, 1880, contains the following description of a Gaucho by O. Peregrinus :

The Gaucho of the Spanish Republics of America is one of the most interesting tribes of the human race. His peculiarities are generally misrepresented. The Gaucho is said to be a nomadic shepherd or thieving inhabitant of the uncultivated parts of the pampas. However, he is decidedly better than his reputation. A proverb of America says : " He is born, lives and dies on his horse," and in certain respects it is perfectly true. The recardo, a saddle composed of blankets, hides, bolsters and straps, very often forms his dwelling, for it serves him, as well as his family, who is likewise equipped with horse and saddle, as a bed, also as a protection against the cold and rain.

He is the best rider in the world, although he has no knowledge of the European art of horsemanship ; he is not even acquainted with the trot. The Gaucho alone is able to travel over 15 German miles daily, for four or five successive days, upon the same mean looking horse, without he or his animal showing any signs of fatigue.

On these journeys he contents himself with a piece of dried meat, and the horse with dried grass, or rather the roots of the pampas. The use of water is also limited. According to his idea, the Gaucho is a free man, for he possesses such an impulse for independence that he even despises a secure dwelling. Now he is found assisting upon this estancia in marking the animals with a red hot iron ; then upon another, engaged in shearing the sheep ; and again, accompanying a great transport of cattle, etc. Moreover, his life revolves upon three things : His horse, his sweetheart, and the free enjoyment of liquor ; when, however, the last is enjoyed, an opponent is found and a duel indulged in, very often terminating fatally, in which case he is exiled from his native land for years.

The lasso is a braided strap of raw leather, with a loop. The

Gaucha throws the lasso 60 or 70 feet, previously marking the horn or foot of the animal he intends to capture.

Soon both the Gaucha and his horse will cease to exist, for agriculture, which is improving year after year, will force him to become civilized, while the original Gaucha horse, through crossing with the noble Tracheur, will change into a new species, harmoniously uniting the durability and toughness of the former with the beauty of the latter.

The same author makes the following flattering comments upon an essay read before the New England Agricultural Society, Worcester, Mass., 1879, (from the fertile pen of our colleague, Mr. Billings):

It gives us great pleasure to note here, with full acknowledgment, an essay from the *New World*, which was copied in the *Turf, Field and Farm*, N. Y., Sept., 1879, and read before an Agricultural Society, pertaining to the study of comparative pathology and the education of scientifically qualified veterinarians. We deem a reproduction of the same superfluous, since we have sufficiently dwelt upon the development of the intended branch of science in the first volume of our *Jaerbuecher*. We trust henceforth to be able to refer often to American veterinary acquisitions in our journal.

J. C. MYERS, Sr., V.S.

CORRESPONDENCE.

VETERINARIAN WANTED.

PITTSBURG, July 15th, 1881.

To the Editor of Turf, Field and Farm, New York, N. Y.:

DEAR SIR:—Do you know of a young veterinary surgeon of good habits and industrious? For such a person I feel sure there is a splendid opening in this place. I am the owner of a great many horses, and with my influence, I feel sure he could soon have a good paying business.

Respectfully yours,

JAMES MCKIBBON,

No. 50 Fountain St., Pittsburg, Pa.

NEWS AND SUNDRIES.

THE ATTEMPT to naturalize camels in Texas and New Mexico has been partially successful.

A DISEASE that is said to resemble diphtheria prevails among horses in some of the towns of Northern New York.

THE SWISS GOVERNMENT has made an investigation of the subject, and declares officially that there is no reason for excluding American meat from Switzerland.

HUNDREDS of horses are dying in Paris, it is reported, from a disease that is called scarlet fever.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Veterinarian, Veterinary Journal, Clinica Veterinaria, *Revue für Thierheilkunde und Thierzucht*, Archives Veterinaires, Recueil de Médecine Veterinaire, Gazette Medicale, Annales de Belgique, Journal de Zoötechnie, Revue Dosimetrique.

HOME.—Medical Record, Surgical Reporter, Turf, Field and Farm, American Agriculturist, Prairie Farmer, Country Gentleman, Maine Farmer, American Cultivator, National Live Stock Journal.

JOURNALS.—Iowa Farmer, Ohio Farmer, Journal of Agriculture (Boston), Ploughman.

CORRESPONDENCE.—W. J. Coates, R. Harrison, J. F. Winchester, C. H. Peabody, J. C. Myers, Sr., J. C. Corlies, A. H. Baker, T. Vaughn.

AMERICAN VETERINARY REVIEW,

SEPTEMBER, 1881.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 187.)

Treatment.—From the preceding remarks, it is evident that in feet affected with canker, the keratogenous apparatus of the foot has undergone no essential alteration in its structure, that its thickness and density have only increased by consequence of the infiltration and organization in its net work of the plastic products of inflammation. And, again, the secreting function of this apparatus, far from being arrested, is on the contrary more active; but the products it gives instead of being concrescible, remain diffluent; hence the impossibility for the hoof to be restored in the regions where this alteration of secretion exists and remains. These important facts, says M. Bouley, must take the lead in the chapter of the therapeutics of canker, because they teach the practitioner that the object to effect, in the treatment of this disease, is not to radically destroy the diseased tissues, as has been too often done and recommended, but to return to them their physical and physiological properties by the application on their surface, of modifying agents which influence

the nutritive and secreting functions of their tissues without interfering with their structure. To reach this point, the most varied pharmaceutical agents have been recommended, the most successful being those which at the same time had parasiticide properties. We however, find it difficult to give the preference to any of them; and we have now more faith in the *modus faciendi*, to the skill of the operator, to the continued use of dressings properly applied, than to such or such agent; all those which have been recommended if methodically applied, can cure canker, and it will be wise to employ them alternatively; when one fails at first it is prudent to try another; canker is a disease so often rebellious to treatment, especially if confined to the lacunæ of the frog, that too many remedies cannot be used.

The first indication is to remove the excess of the horn of the wall, whose length we have said, is often very great; and to prepare a convenient shoe for the dressings. This shoe necessarily varies, as canker is exclusively localized to the plantar surface of the foot or extends to the prodophyllous laminæ. Generally an ordinary shoe is used, more or less covered (wide) and so hollowed as to allow the free application of plates by which the dressing is kept in place. When the condition of the disease requires the removal of large pieces of horn, a truncated slipper is used, proportioned in cutting to the extent of the parts of the wall upon which it is to be applied. There are circumstances even when shoes cannot be used, so much does the disease extend under the wall. It is then necessary to use a shoe without nails, or boots, secured to the coronet by means of straps. In all cases the rule is to take care that the dressings remain fixed in the most exact manner, and that through them, a methodic, steady, but not excessive pressure is constantly applied over the diseased parts.

The first step of the operations passed, the next consists in the removal with proper instruments, of all the loose portions of the horn, either at the plantar surface, at the quarter, or at the heels. One must avoid, in this operation, the excision of soft parts; but the important indication is to follow the disease wherever it exists, and to leave no part of the horn which may have been detached by morbid exudations. Better cut the healthy structures,

and have them bleed, than to neglect to completely expose a diseased part. This done, the horn is to be thinned as much as possible, upon the circumference of the diseased spots, in order to give a suppleness which would ease the swelling of the uncovered parts.

Upon the exposure of the disease where it exists, the fici existing on the surface and edges of the velvety tissues are to be removed with the scissors or sharp sage knife; at the same time the parts of horn which may have remained are to be cut off, avoiding, however, the healthy tissue beneath, which still retains its normal character.

When the canker is very extensive, so that the wall is loose on each quarter, or on all its circumference, it is of advantage to proceed in the required operations at different times.

This done, the shoe can be put on; after which the diseased surface and surrounding horn are to be covered with a thick layer of the medicamentous preparation. If this is in form of a paste, as is often the case, it is spread over with a spatula. If in powder, it is thrown over it carefully. If liquid, balls of oakum are soaked with it and placed on, the whole being then kept in place by pads and plates. The important point is that the dressing should be so applied as to be easily changed, that an exact, regular and sufficiently strong pressure be kept on. No better means can be used for this than the divided plates already referred to.

In canker the dressing must be renewed every day, and even twice daily at the beginning of the treatment. This is an essential condition of success, whatever may be the therapeutical agent employed; and this is not a simple difficulty in practice where the patient is not always of easy access. Moreover, this dressing is somewhat complicated, and can only be skillfully made by the veterinarian himself.

It often occurs that upon the removal of the first dressing, (the second day) one finds the tissues already covered by a layer of hardened horn, adherent to their surfaces. One must then, with the finger, a spatula, or a dry pad of oakum, rub it off where it is found loose and movable and if necessary, renew the applica-

tion of the dressing. The same must be done at the other dressings, carefully watching if this new horn thus formed by the influence of the medication, is not separable from the parts underneath by the different morbid secretions of the disease. One must then carefully scrape off all that is not adherent, and thin the edges, and the projections of all the horn which retains its soundness; the caseous substance being also removed; the same compressive dressing to be put on again.

The modification in the horny secretion, and the formation of a layer of hardened and adherent horn, are especially great in the parts where podophyllous and velvety tissues exist; but are very slow, and surrounded with difficulties in the median and lateral lacunæ of the frog. After ten days of treatment, one may have brought about a normal secretion on the whole circumference of the sole, on the inferior face of the *os pedis*, and on the prominent parts of the pyramidal body. But in the lacunæ the alteration remains isolated, and resists treatment; and it often happens that, if neglected it may again spread and the disease reach its former extent. It is then the case, when the disease is limited to the lacunæ, to add to the ingredient already in use and which is kept applied upon the restored parts, another stronger and more active agent, sometimes simple absorbent; here again it becomes difficult for us to advise the practitioner, the number of recommended drugs being very large and the result depending less on their nature than in the intelligent and persisting manner with which it is applied. When one thinks to use caustics it must be done with care, to limit their action only to the thickness of the keratogenous tissue, and not to carry it to the destruction of the bone, or still worse, of the plantar aponeurosis.

Let us glance at the drugs which have proved most successful in the treatment of canker: First we have the different pyrogenous preparations, especially wood tar, recommended by Bracy, Clark, Reynal and Bouley, and which give astonishing results. Gas tar, oil of cade, petroleum and soot have also been used, but with less advantage; creosote and phenic acid have often shown themselves very useful, by penetrating easier to the base of the villousities where the parasite resides and thus acting more regularly;

phenic acid proved very useful with Krause, Gerlach and Zundel.

After these the best recommended preparations are the salts of iron; Hertwig seems to be well pleased with the powder of the sulphate, and Arnold recommends the pyrolignite of the same metal; Megnin advises specially the perchloride, which, like phenic acid, is rather a powerful astringent than a true caustic. The preparations of copper have also had their time, and especially the acetates, such as the *œgyptiacum* ointment (Girard, Schaack, Rainard and Rey); the baths of sulphate of copper were employed by Verrier Jr., of Rouen; a solution of sulphate of copper and of zinc in water or vinegar were recommended by Delaval and Haubner; Solleysel employed the preparations of copper, but added to them arsenic and other drugs; Eichbaum preferred the powder of chloride of lime, and Ranch ordinary lime, while Aubry employed a mixture of lime and caustic potash.

Caustics were well recommended by other practitioners, but their prescriptions seem to be contrary to the rule we have laid down in the beginning. However, one must not forget that the tissues of the foot, especially when diseased, offer an extraordinary resistance to the action of caustics; they are, so to speak, impenetrable, and the irritation they produce remains superficial, while where those tissues are healthy such agents produce a deep cauterization. Again, this resisting force of the indurated tissues against the action of caustics is limited, and it is possible that one, two or three applications may apparently remain inefficacious, where a fourth or a fifth will give rise to extensive cauterization. The result is explained by the repeated irritating influence of the caustic agent, which, by gradually increasing the vascularity of the parts it touches, increases also the means of their absorption and imbibition. These facts must also be present to the practitioner's mind, and it is by them that he will be guided in their use, rendering them at will, simply modifying, cathartic, or deep caustics.

Nitric acid was used by Percivall and Delorme, the latter considering it the best means in use. Sulphuric acid has also been employed, seldom alone, but mixed with agents likely to re-

duce its effects and render its applications more convenient. Collignon and Renault recommend its reduction with alcohol; Mercier mixed it with four parts of oil of turpentine; Prange with equal parts of tar, and Plass made a paste of it with burnt alum. This last remedy, very simple in its formula, was applied without any dressing; it has proved most excellent in a great number of cases, but may give rise to too deep cauterization (Bouley, Mandel).

Arsenious acid was much used by old horsemen, combined with *œgyptiacum*, turpentine and other ingredients. Hoffmann prefers the arsenite of soda in solution; he sold his secret to the Austrian government for a high price. Butter of antimony was recommended by Huzard, Sr., Prevost, and especially Huzard; chloride of zinc was preferred at the Lyons school.

The treatment of canker by actual cauterization was indicated by Solleysel, but soon abandoned by him. In applying the cautery upon the uncovered tissues of the hoof we encounter the chance of producing a very severe inflammation, which spreads by degrees and gives rise to extensive slough of the hoof, as a consequence of the serous exudation which takes place; the action of the cautery may then become either too mild or too vigorous. Still, it has been recommended by Prevost, of Geneva. Hurel D'Arboval, who also employed it, used it in the following manner: the parts being covered with a mixture of gunpowder and sulphur, a red-hot iron was applied to the spot, the powder burning suddenly and the sulphur slowly. If the combustion was too slow, he increased it and kept it up by the same means. When the operation is concluded the parts are transformed into a black scar, which can be easily removed by scraping, and the application and cauterization may be repeated, and so on until it appears that a sufficient amount of heat has penetrated the tissues to destroy the material by which canker could be regenerated. The cauterization being once properly effected, then in order to sustain irritation, the foot is covered with Burgundy pitch, or resin, melted and warm, which is allowed to cool off on the foot, when a dressing of oakum and the shoe are put on. The dressing is changed as soon as suppuration shows itself and renewed with the

same ingredients in the same manner until the wound becomes healthy and granulating.

It is only for the sake of the record that we refer to the exclusively surgical treatment, based upon the erroneous idea that the fici of canker are abnormal products, deeply implanted in the tissues beneath, and where it was advised to look for the imaginary roots of these fici at their extreme limits. In this treatment, not only the diseased horn was removed, but the entire sole, the plantar cushion and often the plantar aponeurosis was excised. This practice, advised by Lafosse junior, was also recommended in the veterinary schools by Chabert in France, and Dieterichs in Germany. It prevailed for a long time, though experience showed that the wound resulting from such an operation was of very slow recovery, that the frog especially could not be regenerated, that there remained a central ulcer, and that it gave rise to such a malformation of the foot that the animal remained lame for a long time, sometimes for life. Notwithstanding these objections, observed by Jeaune, Girard and Eichbaum, this treatment is still followed by a few who prefer it to the simple operations of Solleysel, which consists in the division of the loose pieces of horn and the excision of the fungoid projections.

We have thus far only spoken of the local, without referring to the internal or constitutional treatment of canker, recommended by those who look upon the disease as constitutional. Without believing that it can have any real curative effect, we, however, admit its usefulness, when the disease is of old standing, and that the animal has suffered much by it. Ferruginous preparations are specially advisable, and we prefer the carbonates that are used by Delwart to the sulphates recommended by Prevost, Delaval and Hertwig, and it is well to unite them with bitters and tonic powders. Arsenious acid is prescribed internally by Delaval, Fenillette, Niederberger, Obich; and other alteratives, such as mercury, which we would not advise. Nor can we understand how any benefit is to be derived from diuretics and purgatives, and especially from the use of external emunctories, such as setons.

(To be continued.)

RESUMED STUDY IN ANTHRAX.

CONSIDERED FROM THE POINT OF VIEW OF SANITARY POLICE.

BY PROF. DESSART.

(Continued from page 193.)

II. SPECIAL SYMPTOMATOLOGY.

Taking advantage of the most recent scientific discoveries, we will consider anthrax under two types only, viz : *without* and *with external manifestations (localizations)*, both being collected under the common name of *anthrax disease*.

ANTHRAX IN EQUINES.

(a). *Anthrax without external fever.* (Anthrax fever).—Anthrax fever runs a rapid course, not exceeding generally three or four days. The horse afflicted with it becomes suddenly sick, and the access of the disease is marked by a well developed febrile condition. Ordinarily the subject is comatose. There is great prostration, and the animal has a staggering gait. Respiration is accelerated, and the pulse, first full, rapidly becomes small and irregular. The motions of the heart are strong and bounding. The temperature soon diminishes, while in the febrile stage it had risen more or less. The coat is dull; the hairs of the mane are easily pulled out. The visible mucous membranes are infiltrated, assume a dark yellow or red brick color, and are often covered with petechiæ. The urine is usually brownish, and frequently bloody. There is no appetite, but occasionally great thirst, but in most cases the animal appears quite indifferent to either liquid or solid food. At times there are colics, varying in severity and duration, accompanied by very offensive dark stools, the evacuation of which is often accompanied or preceded by bloody discharges, manifesting the existence of enterorrhagy.

Sometimes the comatose stage is interrupted by an access of violent excitation, at which time the animal assumes an aggressive attitude.

The morbid process continuing, all the symptoms increase, and the animal soon dies, death usually taking place either upon the

same or the day following that of the appearance of the disease.

Such is the most common aspect of anthrax, unaccompanied by external localization, amongst equines.

In some cases the disease advances much more rapidly to its termination. The animal exhibiting no appearance of disturbance in health, suddenly stops his work; he shakes his head; presents a frightened appearance; trembles, instinctively spreads his legs to avoid falling, then drops down, and, with a few convulsive movements, dies.

In such circumstances, when the disease kills in less than an hour, in a few minutes, indeed, the disease is more commonly known as the *apoplectic form of anthrax*.

(b). *Anthrax with external manifestations*, (Carbuncular Anthrax).*—The disease presents a symptomatic ensemble very analogous to that of ordinary anthrax fever, but its evolution, which is less rapid, is accompanied with external alterations. Indeed, during the course of the disease, ordinarily as early as during the febrile period, tumors of various sizes, and generally well defined, appear, principally upon the declivous parts, rich in sub-cutaneous laminous tissue. These tumors, ordinarily small at first, are at the beginning, warm and very painful. They rapidly increase and then lose their sensibility, sometimes assuming enormous sizes. If incised a flow of black, ichorous, uncoagulable blood takes place, mixed with serosity and gelatine-form material. Later, they become painless and lose their heat. Some are emphysematous and crepitating, but never so at the outset of the disease, as the crepitation and the emphysema are but the result of the formation of gasses in the putrifying sub-cutaneous tissues. When the death of the animal is soon to take place one may sometimes observe that the altered tissues and the skin covering them are eliminated by a process of sloughing analagous to that of gangrene. One sees also, in numerous cases, that the hairs which cover the carbuncular tumors are moistened with a kind of red dew from the transudation of the blood, deeply altered, through the tegumentary covering.

* Charbon Essentiel.

It sometimes happens that the *localization* takes place principally in the mouth, or upon the tongue, which becomes blackish, extensively tumefied, and covered with phlyctens. It also happens that the localization takes place more especially in the horny box of the foot and is followed by its slough. In the first case, the disease receives generally the name of *Stomanthrax* or *Glossanthrax**; in the second it is said that there is *anthrax in the foot*.

The duration of this form of anthrax is not as short as that of anthrax fever. In most cases death takes place about the third or fourth day.

B. IN BOVINES.

(a). *Anthrax without external localization*. (Anthrax Typhus.)—Under this form,† the morbid process manifests itself in a way somewhat similar to that of anthrax fever of equines. Like it, sometimes, it crushes, so to speak, or kills animals in a few hours, at others being much less rapid in its action, requiring three or four days at most before it ends fatally. In most cases animals die inside of twelve hours.

When the disease assumes the apoplectic form it shows no prodromic symptoms. Animals are suddenly struck with it, most ordinarily while at pasture. They are seen stopping suddenly, staggering for a few seconds, trying to step forward and dropping down heavily, to rise no more. They struggle for a few minutes, sometimes an hour or two and die. Some at the time of the fall utter a kind of a frightened howl, a short and loud bellowing, but the majority remain mute.

When the disease is less rapid in its development, it shows a series of symptoms easy to observe. These are generally as follows: hebetude, alternating with moments of excitation; lowering of the normal temperature of the body, preceded by a short elevation; horripilations, sometimes subcutaneous emphysema at the shoulders, neck, back, &c.; visible mucous membranes with petechia of a dark red or yellowish hue and infiltrated; pulse at first strong and accelerated; beating of the heart tumultuous;

* Very rare in Belgium, especially in equines.

† Anthrax fever of some authors. First variety of anthrax typhus of Chabert.

considerable prostration; quite often paraplegia; anorexia and adipsia; meteorism; abdominal pains; diarrhetic passages, often bloody; in most cases hematuria; agalaxia; dispnoea, with or without cough; head shaking, sometimes bent towards the shoulder; ordinary sterno-abdominal decubitus or with the hind legs spread and extended backwards, or in a complete lateral position; death without convulsions.

(b). *Anthrax with external localization*. (Symptomatic Anthrax).—Under this form it is distinguished from the other, first by its duration, always less short, then by the appearance of diversiform carbuncular tumors upon different parts of the body, groin, neck, axillæ, back, thorax, abdomen, croup, thigh and fetlocks. These tumors, also called carbuncular efflorescences, present the same characters as those of carbuncular anthrax of solipeds. They undergo the same changes.

(c). ANTHRAX IN OVINES.

(a). *Anthrax without external localization*. (Splenic apoplexy*).

Sang de rate is common in France and Germany. It is rare in Belgium. It is a deadly sickness, which exists mostly in the enzootic form in some pastures, where it kills extensively, unless the flocks are rapidly removed. Its duration is short, and according to Mr. Reynal it is always fatal.

It shows itself suddenly without any appreciable warning. The affected sheep stops eating; loses its ordinary liveliness; and goes about head down, and in a state of great prostration. It becomes unable to follow the flock; the sheep stands back. The respiration and pulse are accelerated, the heart loses its normal action, and seems to be bounding in the chest. The peripheric temperature is sensibly lower, soon also is the internal. If micturition takes place naturally, which is very rare during the course of the disease, or under the influence of compulsion hematuria† is clearly manifested. The visible mucons membranes are

*Sang de Rate.

†M. Reynal (loc. cit.) gives a very easy way to make the patient micturate. It only requires to take hold of him and pinch his uose with the fingers for a few seconds. The animal urinates at once while struggling.

injected, especially those of the eye and mouth. They soon assume a dirty, dark red, slightly yellowish color, and on the lower lips are covered with "purplish spots." According to Reynal these are characteristic of the disease.

This first manifestation has scarcely appeared when other symptoms show themselves; general trembling, inability to stand up, abundant discharge of tears; difficulty of sight, escape of blood through the nose, anus and vulva; sometimes cold œdema of the neck, chest, groin and inferior jaw. Lastly, more or less severe convulsions take place, and carry off the patient in two or three hours, seldom sooner, rarely later.

(b). *Anthrax with external localization.* (Eruptive Anthrax).—This form is almost entirely exceptional to ovines. Its symptomatology is limited to the development and character of the carbuncular tumors, and is the same as that of the symptomatic anthrax of cattle. Like it, anthrax of sheep with external localization is less prompt generally in its development.

(*To be continued*).

FREAK OF NATURE.

BY A. H. BAKER, V. S.

Having run across a very singular freak of nature, a few days ago, I thought I would describe it to the readers of the REVIEW. The subject is a horse, buckskin in color, rising six years old, fifteen hands and three inches high. The peculiarity lies in the generative organs, having somewhat the appearances of an hermaphrodite, but the developments of the parts is unusual even in such cases. The vulva of the female organ is natural in outline, but the lips are grown together, leaving an opening at the bottom large enough to allow the male organ to pass out, the lower part of the labia majora forming the sheath of the penis, although it encloses only a small portion of it, leaving the glans always exposed and protruding at the point occupied by the clitoris of the female. The glans is perfect in every respect, but small, it having the urethral fossa, cul de sac and fungus-like protuberance of

the male. The mammary glands are entirely wanting, but two small teats are found in their natural position. The animal has the general appearance and *finesse* of the mare, but has never shown any indications of being in heat; it has the organs as far as micturation is concerned, of the male, but no testicles are visible, and never shows any inclinations of the stallion when in the company of mares in heat, but minds his own business like a gelding. The urine is passed in a small, steady stream, as with the male, but he takes the position of the female. He is perfect in every other way, and can trot in 40 without training. The glans penis that is exposed is about the size of the same organ of a gelding.

GOURME.

BY T. V. ROGERS, D.V.S.

There is, at this writing, in Gloucester Co., N. Y., an enzoötic disease which I suspect to be *variola equina*. I have not had an opportunity to see authenticated cases of the disease, and cannot prevail on any one to allow inoculation to bovines.

I give a short summary of some cases I have met with in my own practice, and of two that I did not treat. I have seen more than fifty cases of the disease, and there are comparatively few farms free from it, in a mild or severe form.

Case 1.—A driving horse in Woodbury was attacked by swelled legs, followed by formation of ulcers on the fetlocks, and destruction of the superficial layers of the skin around the bulbs of the heels; purulent infiltration into the connective tissue; inflammation of the superficial lymphatics; formation of pus in the sub-maxillary glands—fever. Good recovery.

Case 2.—A horse in Haddonfield, N. J. Two ulcers on the outside of the near hind leg, one on the fetlock joint, the other below it; the surrounding tissue somewhat indurated, the granulations florid, the pus laudable; at other points between the fetlock and hock were foci of purulent discharge, and on other parts of the body, including the face, were marks of similar

ulcers which had recently healed; no swelling of sub-maxillary glands; no constitutional disturbance; appetite and spirits good. Recovery prompt and complete.

Case 3.—Two horses at Berkley, N. J. In these cases the outbreak was confined to the heels of the hind legs. The attack came on in a night. Considerable heat around the coronets, slight lameness. Quick recovery.

Case 4.—A horse in Mullica Hill, N. J., under treatment by a Philadelphia veterinarian for purpura hæmorrhagica. The owner said: "the hind legs and face had been badly swollen, the legs 'breakin' below the fetlocks;" when the swelling subsided, at the time of my visit, the sores on the heel looked healthy, the legs were somewhat swollen, and there was considerable swelling in the region of the face and nose. The appetite was good, the sub-maxillary glands slightly swollen, *the temperature normal*; none of the discoloration of the visible mucous membranes so characteristic of purpura.

Case 5.—A stable of horses in Mantua, N. J. In the horses I examined, the disease was confined to the nose, and was in the stage of scab. Every animal was attacked, one having ulcers on the fetlock.

Case 6.—All the horses in the stables of the Mullica Hill Stage Co. There also the disease was confined to the nose. In some cases there was a little purulent discharge from the nostrils, in others none. In one white-faced horse, the eruption was decidedly pustular, but where the skin is pigmented the pustulation cannot be affirmed.

DIFFERENTIAL DIAGNOSIS.—*From purpura*, by the absence of petechia and hæmorrhage, the non-elevation of temperature, the percentage of recovery.

From farcy.—By the character of the pus, the fact that the outbreak is confined, in most cases, to parts of the body where the lymphatics are sparse, the readiness with which healing takes place, and the appearance of the hair, which is glossy and lies the right way. The ulcers are distinguishable from those of pemphigus, (which in some cases, they greatly resemble), in that they heal readily without treatment. The only cases where

constitutional disturbance is marked are those where purulent infiltrations give rise to a pyæmic condition, with embolic abscesses, and if death occurs in any case, it will be from this secondary pyæmia.

Mortality.—I have not heard of any deaths from the disease.

Spread of the disease.—At this time of the year, the farmers of Salem and Gloucester Counties take their truck to Philadelphia by road. The horses are watered from a common bucket, and have their noses sponged out with a common sponge, at Mullica Hill, Mantua, Woodbury and Westville.

If any gentleman on your staff wishes to experiment with the virus, I shall be glad to forward some.

EDITORIAL.

ENGLISH VETERINARY CONGRESS.

We are indebted to the kindness of Prof. Duncan for the essays read at the Veterinary Congress held in London in July.

Presided over by Mr. George Fleming, the world-known veterinarian, the profession was largely represented by members from the old and new world, Prof. Duncan no doubt representing Canada, and we hope that Dr. C. P. Lyman was there also to represent the United States.

The object of the Congress, as stated in the paper read by Dr. G. A. Bauham is, "to promote and advance veterinary science and maintain the honor and interests of the veterinary profession."

The establishment of such an association certainly marks an era in the history of British veterinary science, and judging from the large attendance, and the enthusiasm and earnestness of those present, it is not too much to expect that these meetings will, in the future, not only unite and strengthen the members of the profession, but that they will also serve as an incentive to original investigation and research in all the branches of veterinary science. These meetings of earnest and progressive veterinarians can but be productive of much good to the general public, as well as to the profession.

We sincerely trust that the example set by our British friends will serve to infuse new life and vigor into the meetings of the United States Veterinary Medical Association, and let us hope to be able to return the compliment of the Congress, by mailing copies of the essays that may be read and discussed in September. The papers presented at the recent Congress are well worthy of a separate consideration, but our space will not permit us now to more than mention the subjects. They are: On Soundness of Horses; Suggestions as a Basis for Discussion on the Subject, by J. J. Meyrick. The Influence of Disease of the lower Animals on the Health of Man, by Prof. Wm. Robertson. Suggestions for Effective Legislation for the Prevention of Contagious Diseases in Animals, by Ben. H. Russell. Cruelty to Animals from a Veterinary point of View, by Wm. Hunting. Scheme for forming a British National Veterinary Association, by G. A. Bauham.

Each of these papers was thoroughly discussed by those present. We trust that future meetings of the Congress will fulfil the promise of this.

UNITED STATES VETERINARY ASSOCIATION.

Veterinary Congresses have recently been held in Italy and in England. They were largely attended, and numerous and important subjects were discussed, no doubt to the advantage of all.

In the United States we have what might be considered by some as a Congress of Veterinarians from this large country. It is the *United States Veterinary Medical Association*, whose annual meeting is to take place on the third Tuesday of this month. Leaving aside the slight difference which may exist between a congress and the true organization of the association, what an enormous difference can still be observed between the doings of this above named association and those of the two meetings held in Italy and in England! There a large amount of material; of good work gone through; papers on important subjects relating to the profession in its different points of view; records discussed. On the other, on the contrary, what? * *

This association has now been in existence for eighteen years, and what work of any advantage to the profession can it boast of? By a recently published register of the veterinarians practicing in the United States, the profession is said to count about seven or eight hundred members in its ranks, and yet the United States Veterinary Medical Association counts only sixty-eight members.

There are no doubt, some reasons for this condition of things. Why is it that so few members belong to it—are the conditions of admission so rigid that any worthy practitioner cannot be admitted? Why is it that the meetings are so deficient in professional discussions, and so lamentably remarkable for the absence of papers of acknowledged importance? Why is it that generally one, or perhaps two papers, and these probably only single records of cases, are presented, and why is it that after traveling many hundreds of miles, members are obliged to separate after a few hours and return to their homes without satisfaction, or the acquisition of any important addition to their previous stores of knowledge?

This is a sad state of things, and one which should suggest on the part of the officers of the association, a series of reflections which should result in some measures of *reform*, which are conceded by all to be imperatively necessary.

If the association needs an increase of members—and we believe that every respectable veterinarian ought to be identified with it—the officers should endeavor to urge those who are timid about application for candidature, to send in their names without hesitation.

If the members are neglectful and backward in the preparation of scientific papers, and other means of securing the advancement of their common professional interests, it is the duty of the officers of the association to take proper measures and make the necessary provisions for the success of their meetings. To be the President of such an association is no small honor, as we esteem it, but to be deserving of the honor requires an energetical supervision of the work of the association, quite as much as it includes the pleasant duty of presiding at the stated meetings in Boston or New York.

These remarks are presented with but one object—we may be as guilty of neglect as any other member of the association, and we feel that we are all more or less to blame. We have been giving the subject a great deal of thought, and believe that some important reforms ought to be made in our organization at once.

Let us at our next meeting, undertake this work of reform; let us try to discuss the subject as it ought to be discussed, and by proper action let us lay the foundation for not only an association, but for a congress, worthy of this great country and of the immense interests our profession is called to protect.

FRENCH SANITARY LAW.

This law, which has been so long expected, has at last passed and been signed by the executive head of the French government. It is very elaborate and may be usefully studied by all who are interested in sanitary police. We publish to-day the first chapter, designating the contagious diseases likely to come under the spirit of the law, and the sanitary measures applicable to them.

Among the sixteen articles found in this chapter, the 9th and 12th will prove interesting; the first as ordering the inoculation of bovines in the localities which are declared infected, and the second as forbidding the treatment of animals affected with contagious diseases by unqualified practitioners.

STATE VETERINARIAN IN ILLINOIS.

In the July number of the REVIEW, we published the law proposed by the legislature of Illinois for the Suppression and Prevention of the spread of Pleuro-pneumonia among Cattle, Section 1 of which provides for the appointment of a State Veterinarian.

One of our exchanges brings us the news of the appointment to the position of one of the assistant editors of the REVIEW, N.

H. Paaren, M.D., who has for years been prominent in the State of Illinois by his veterinary works. Dr. Paaren, we have no doubt, will do justice to the duties imposed by his new position, and confer credit on the profession for which he has labored for years.

NOTICE.

The nineteenth regular and anniversary meeting of the United States Veterinary Medical Association will be held in New York city, on Tuesday, the 20th of September, in the lecture room of the American Veterinary College, 141 W. 54th street.

The Comitia Minora meets at 10 A.M. The regular meeting opens at 11 A.M.

C. B. MICHENER, D.V.S., *Secretary*.

SANITARY LEGISLATION.

CHAPTER I.

FRENCH LAW UPON THE SANITARY POLICE FOR ANIMALS—CONTAGIOUS DISEASES OF ANIMALS AND SANITARY MEASURES WHICH ARE APPLICABLE TO THEM.

SEC. 1. The diseases of animals reputed contagious, and which give occasion to the application of the provisions of the present law are :

Bovine pest (Typhus) in all species of ruminants.

Contagious pleuro-pneumonia of bovines.

Small-pox and *scabies* in ovine and caprine species.

Foot and mouth disease in bovines, ovines, caprines and swine.

Glanders and farcy, dourine in equine and asinine species.

Rabies and Anthrax in all species.

§ 2. A decree of the President of the Republic, rendered on the report of the Minister of Agriculture, after advice of the consulting committee of epizootics, may add to the nomenclature of the diseases reputed contagious in each of the species

of animals above mentioned, all other contagious diseases, named or not, which might assume a dangerous character.

The provisions of the present law may be extended, by a decree rendered in the same form, to animals of other species than those above designated.

§ 3. All owners, or persons having, in whatever title it may be, the care or guard of an animal affected or suspected of being affected with a contagious disease, in the cases provided by sections 1 or 3, is required to make immediate declaration of the facts to the Mayor of the town where the animal is.

This same declaration is required from all veterinarians called upon to treat such diseases.

The affected or suspected animal shall be immediately, and before the administrative authority has responded to the notice, isolated and separated as much as possible from all other animals liable to contract the same disease.

It is forbidden to remove the animal before the official veterinarian has visited him. The same interdiction is applicable to the burying, unless the Mayor, in urgent cases, has given a special permission.

§ 4. The Mayor shall, as soon as advised, assure himself of the execution of the prescriptions contained in the above section and provide for them if necessary.

As soon as such declaration has been made, or, in default of such declaration, as soon as he knows of the disease, the Mayor shall proceed without delay to direct an inspection of the diseased or suspected animal by the official veterinarian.

The veterinarian shall verify, and if necessary, order the complete execution of the provisions of Section 3, and immediately direct the application of the necessary measures of disinfection. He shall submit his report without delay.

§ 5. Upon the recognition of the disease, the Prefect of the department shall decide upon such measures as the peculiar case may require. If necessary he shall issue a decree of infection. This may demand in the localities implicated, the following measures :

1st.—Isolation, sequestration, visits of inspection, census and marks of animals and herds in the infected localities.

2d.—The interdiction of these localities.

3d.—The temporary interdiction or the regulation of fairs and markets or of the transport and traveling of animals.

4th.—The disinfection of stables, barns, vehicles or other means of transport, the disinfection or even destruction of the objects used by diseased animals, or those which had been soiled by them, and generally of any objects likely to become a means of contagion.

A regulation of public administration shall determine which of these measures shall be applicable, according to the nature of the diseases.

§ 6. When a decree of the Prefect has established the existence of typhus in a commune, the affected animals, or those of the bovine species which had been contaminated, even when they do not yet present any apparent sign of the disease, shall be destroyed by order, according to the decision of the official veterinarian, and after estimation.

It is forbidden to arrest the execution of said measures upon such diseased animals, except in the cases and under the conditions which would be especially established by the Minister of Agriculture, upon the advice of the consulting committee of the epizootics.

§ 7. In the case provided for in the preceding section, diseased animals shall be destroyed on the spot, except in the case where the transport of the cadaver to the place of burying shall be declared by the veterinarian more dangerous than that of the living animal; the transport, in view of killing, may be authorized by the Mayor, according to the advice of the official veterinarian, for the animals which were contaminated.

Animals of the ovine and caprine species which have been exposed to contagion are to be isolated and submitted to sanitary measures, to be determined by the regulation of public administration charged with the execution of the law.

§ 8. In cases of confirmed glanders, and in those of farcy and anthrax, if the disease is judged incurable by the official veterinarian, the animals must be killed by order of the Mayor. Where there is doubt respecting the nature or incurable character of the

disease, between the official and the attending veterinary surgeon, the Prefect shall name a third veterinarian, whose report shall be acted upon.

§ 9. In the case of contagious pleuro-pneumonia, the Prefect shall order the killing, in the delay of two days, of animals recognized as affected with the disease by the official veterinarian, and the inoculation of bovine animals, in the localities declared infected with the disease.

The Minister of Agriculture shall have the right to order the killing of bovine animals having been in the stable or belonging to the same herd, or that have been in contact with animals affected with contagious pleuro-pneumonia.

§ 10. Rabies when confirmed in animals of whatever species, subjects the animal to immediate death ; the killing cannot be postponed upon any pretext.

Dogs and cats suspected of hydrophobia must be immediately destroyed. The owner of the suspected animal is required, even in the absence of administrative agents, to attend to the execution of this prescription.

§ 11. In epizootics of small-pox, the Prefect may, by decree issued under advice of the consulting committee of epizootics, order the vaccination of infected flocks.

Vaccination cannot be performed without authorization from the Prefect.

§ The practice of veterinary medicine, in contagious diseases of animals, is forbidden to any one not holding a diploma as veterinary surgeon.

Upon the application of the general council, the Government may adjourn, by decree, the execution of this measure, for a period of six years from the promulgation of the present law.

§ 13. The sale or offer for sale of animals affected with contagious disease is forbidden. The owner can only dispose of them under conditions established by the regulations of public administration provided for in Section 5.

This regulation shall fix for each species of animal, or of disease, the time during which the interdiction to sell shall be applied to animals which have been exposed to contagion.

§ 14. The meat of animals dead by contagious diseases, whatever they may be, or of those killed as affected with typhus, glanders, farcy, anthrax or hydrophobia, cannot be used for consumption.

Cadavers, or remains of animals dead by typhus or anthrax, or having been killed as affected with those diseases, shall be buried after the skins have been slashed, unless sent to a regularly authorized rendering establishment.

The conditions under which the transport, burying or destruction of cadavers will be executed, shall be decided by the regulation of public administration provided by Section 5.

§ 15. The meat of animals killed as having been in contact with animals affected with typhus, may be delivered for consumption, but their skins and remains cannot be used until they have been disinfected.

§ 16. All contractors for transport by land or water who shall have transported animals, shall, at all times, disinfect, according to the prescribed conditions of the regulation of public administration, the vehicles used for that purpose.

(To be continued.)

THE CATTLE-PLAGUE.

INTERVIEW WITH A MEMBER OF THE NATIONAL COMMISSION WHICH LATELY MET AT SARATOGA—OUTLINE OF THE WORK WHICH THE COMMISSION HAS BEFORE IT—THE SOURCE AND SPREAD OF PLEURO-PNEUMONIA—NEXT MEETING OF THE COMMISSION IN CHICAGO.*

J. H. Sanders, Esq., of the national commission to make an investigation into and report upon the subject of pleuro-pneumonia among cattle in this country, together with the best means to be employed to secure the removal of the British embargo on our cattle traffic, returned home from the Saratoga meeting of the commission on Sunday. A reporter for *The Times* had a talk with him, yesterday afternoon, upon the work of the body so far.

The commission was appointed by Secretary Windom under

* *Chicago Daily Times.*

the sundry civil appropriations bill passed by the last Congress, and consists of Prof. James Law, of Cornell University; Dr. Thayer, of West Newton, Mass., and J. H. Sanders, of Chicago. Prof. Law has had a large experience with the disease, and is considered eminently fitted for the responsible position conferred on him. Dr. Thayer is also practically conversant with the disease, having had charge of the work of stamping it out in Massachusetts. Mr. Sanders is editor of *The National Live Stock Journal*, a recognized authority on cattle and horses, and is a man of much reading and experience. The commission met at Saratoga last week, and organized by the choice of Prof. Law as president, and Mr. Sanders as secretary. Several days were spent in laying out the work to be done. A summary of its conclusions is herewith presented:

The primary object of the commission is to suggest some means by which the British government may be assured that none of the cattle imported from this country have the contagion, which assurance will warrant it in removing the present restrictions on the trade. Under the law, at present, all cattle received from the United States must be slaughtered at the point of debarkation within ten days after their arrival, regardless of their condition or the state of the market. Under this restriction, it is estimated that cattle are worth from \$15 to \$25 per head less than they would be if they could be taken inland and kept till their condition and the state of the market were favorable. The annual loss thus entailed upon American breeders and shippers is estimated at from \$4,000,000 to \$5,000,000.

Many of the members of Congress thought that a strict inspection at the port of export would remedy the evil; but the committee was of the opinion that any inspection, however rigid, would be useless as far as giving the British government an assurance of freedom from the disease is concerned. So long as there is any pleuro-pneumonia in the country and so long as an unrestricted traffic is permitted between the infected and non-infected districts, an inspection would go for nothing, owing to the insidious nature of the disease. It fastens upon an animal and incubates from thirty to ninety days before making its appearance,

and an animal which, to all appearance is perfectly healthy when put on board of a vessel, may show the disease on the way, or after debarkation.

It has always been claimed, and the commission holds, that the disease does not exist west of the Alleghanies. The British inspectors claim, however, that they have been able to trace the disease to herds of cattle from the west. Either they are mistaken or the commission is, and one of the pieces of work which the latter has set before itself is to determine definitely the exact truth of the matter. To this end it has decided to make a searching investigation among the herds of the west, paying particular attention to the swill, dairy, and distillery cattle, among which it most probably exists, if at all. Until that is done, no man can speak with authority sufficient to justify Great Britain in removing the embargo on western cattle.

The commission has devised a system of registration and numbering by which, if the English authorities will lend their co-operation, it will be possible to trace every animal landed upon British soil to the American farm on which it was fattened. Whether or not this co-operation can be secured will be known in a few days.

The commission has ordered the preparation of a circular to be sent to the governors of states, secretaries of agricultural societies, and the general public, setting forth the danger of the traffic in eastern dairy calves. It is among these and these only that the disease is believed to generate. They are cooped up and crowded together, and fed on slops, and the disease is known to exist all along the coast from New York to Washington, and is gradually being carried by contagion into the interior. The west has thus far escaped it, because the only cattle heretofore brought from the east were of the finer breeds, which were more carefully kept and were not affected. Last year, however, a large trade in these dairy-farm calves sprung up, no less than 40,000 of them having been sent to various western points through Chicago alone. It is the danger of contamination from this source to which the commission proposes to call attention.

It will also make a searching investigation into the sanitary

condition of the vessels in which the cattle are transported to England, to determine whether they may have anything to do with originating the disease.

It will likewise look into the condition of the cattle along the principal lines of transportation between Chicago and the seaboard, including Boston and Portland, with a view to determining whether, if healthy when shipped, they are liable to contract the disease at points where they are taken off for rest or feed. When all this is done and the commission has reliable statistics before it, it will endeavor to formulate legislation to cover the emergency.

The next meeting will be held at the Sherman House in this city on the 29th inst. The entire work of the body, it is thought, will not be completed before the close of the year. The business office of the commission will be the office of Secretary Sanders, Honore Building, at the corner of Adams and Dearborn streets, where all communications should be addressed.

EXTRACTS FROM FOREIGN JOURNALS.

SECOND NATIONAL ITALIAN VETERINARY CONGRESS, AT MILAN.

Reports and discussions upon the following questions will take place this month at the Second Italian Veterinary Congress which will be held at Milan :

1st. Report of the commission appointed at the Congress of Bologne, in 1879, by Prof. Lanzillotti-Buonsanti, upon a project of organization of the Sanitary Veterinary Service in Italy.

2d. Report of the commission by Prof. Guzzoni upon the necessity of establishing a uniform guide for veterinarians of the anatomico-pathological alterations which at the slaughter-houses shall exclude meat from the market.

3d. Report presented by Dr. Ciro Griffini, upon a project of an association of protection and mutual assistance for all Italian veterinarians.

4th. Report upon a project of uniform regulation for all Italian veterinary societies.

5th. On the best, quickest, surest, least cruel mode of killing domestic animals.

6th. Upon the danger and inconvenience of the modern systems of transport of animals by railway or steamship.

7th. What ought to be the duration of the sequestration in the various contagious diseases.

8th. Hygienic and sanitary measure to adopt, to arrest the spreading of contagious pleuro-pneumonia at its first appearance.

9th. Upon the hygienic and sanitary measures to use against anthrax, and what will be the duration of their prophylactic effects.

10th. What are the diagnostic means of recognizing the suspected glands and chronic nasal catarrh, from true glanders in horses. Give sanitary measures accordingly.

11th. Upon the necessity of adopting preventive measures against foot and mouth disease.

12th. By what means and regulation of sanitary medicine can Italy be protected from the introduction of trichinosis through American pork; and what means are to be used if the introduction exists.—*Clinica Veterinaria*.

A PROLIFIC COW.

Mr. G. Borrini reports in the *Clinica Veterinaria*, a case of a cow which in thirty-two months from the time of her first delivery gave birth to eleven calves.

In 1879 she had two, which lived and were afterwards killed for market.

In 1880, her second pregnancy, she had five, four living and a dead one. Of the former, two only were killed for market, the others dying a few days after birth.

In 1881, she gave birth to four more, three females and one male. This last soon died. The three females are yet alive, and in good prospect of reaching full growth.

During the three deliveries, the cow did not suffer the slightest disturbance.—*Clinica Veterinaria*.

FIBROUS POLYPUS OF THE RIGHT VESICULA SEMINALIS IN THE HORSE.

BY DR. RAFFÆLE CIUCCI.

An interesting specimen was obtained from a subject brought to the clinic of the veterinary school of Milan, for diseases of the urinary apparatus.

It consisted of the bladder, the two vesiculæ seminalis, and the urethra.

By examination it was found that the vesiculæ seminalis, and especially the right, were much enlarged; that the intra-pelvic portion of the urethra was comparatively much enlarged also; that the peri-urethral connective tissue was very œdematous and that a purulent exudation existed, principally in the portion in connection with the rectum. Feeling through the walls of the pelvic urethra, revealed the presence of a large bosselated mass, existing in the interior of the canal. This consisted of a neoplastic polypus, arising from the superior portion of the right vesicula, passing through the ejaculatory canal into the urethra to its ischiatic portion. It measured at the base, four centimeters. It seemed to be constituted of three portions, and was about fifty centimeters in length.—*Clinica Veterinaria*.

TRICHINA AT HAMBURG.

According to official statistics to date of March, 1881, the following are the results obtained by the examination of pork :

NUMBER OF PIECES.

	1880.		1879.		1878.	
	Exam- ined.	Con- demned.	Exam- ined.	Con- demned.	Exam- ined.	Con- demned.
American hams.	78,597	836	102,662	1,290	49,513	382
European hams.	39,846	—	28,710	2	17,113	3
“ hogs.	9,913	—	160,204	1	10,838	—

The proportion of trichinosed pieces is then for American products, 1.05% in 1880; 1.16% and 0.79% in the two other years; for European products, on the contrary, it is 0 for 1880, 6 for 100,000 in 1879, and for 10,000 in 1878.—*Revue d'Hygiène*.

PORK POISONING ; DESCRIPTION OF A NEW INFECTIVE ORGANISM IN HAMS.

Serious accidents having taken place at Welbeck Abbey, an inquest was made by Dr. Ballard, and revealed the fact that "the seventy-two persons affected had all eaten hams ; thirty-six hours after, they had fever, choleric diarrhœa, muscular pains, vomitings and great prostration. Several of the sick ones died. Sent to London, the meat was examined by Mr. Klein. It contained no trichina, but in the *raw* or *cooked* meat, the muscular fibres were covered with baccilli and spores, in great quantity. Inoculated to healthy pigs, these microscopic organisms produced death in them.

At the autopsy of one man who had died it was found that the glomerules of Malpighi, the arteriols of various tissues, were closed, obliterated by a large number of bacteria. Was this anthrax, or the disease improperly called typhoid fever in the pig ? What is the origin of these parasites ?

And again, at the same time, Dr. Seaton observed at Nottingham, a similar affection, produced under similar conditions. Here also, hams were the cause of it, and Mr. Klein found in them the same bacteria, of exactly the same nature, with those he had found in the hams from Welbeck.—*Revue d'Hygiene*.

HORSE-POX.

BY M. J. PHILIPPE.

The 3d of November, 1876, the author was called to visit a mare slightly sick ; he found on the buccal mucous membrane and upon the tongue, pustules of *horse-pox*. Collecting the liquid from these pustules, several children and a cow were vaccinated with it. Six days later, the use of a twitch which had been used upon the mare produced *horse-pox* in another horse, and gave beautiful pustules. The vaccination was successful in most of the cases.

When preserved in glass tubes, *horse-pox* virus rapidly loses

its activity for the vaccination of children, and as it may be used a long time for the inoculation of cows, Mr. Philippe proposes to collect the virus whenever he can find it, and inoculate cows, thus making the veterinarian the true keeper of vaccine matter for man.—*Revue d'Hygiene*.

HOSPITAL RECORDS.

STOMACHAL INDIGESTION IN THE HORSE, WITH ANTE-MORTEM RUPTURE. VOLVULUS OF THE SMALL INTESTINES AND OF THE INFERIOR HALF OF THE CÆCUM, LACERATION OF THE DIAPHRAGM AND HERNIA OF THE STRANGULATED INTESTINE IN THE THORAX.

BY M. CARNET.

This is the report of a horse, which suffering with pulmonary emphysema, had been submitted to the following diet—no hay whatever, but instead, its equivalent of straw and barley in equal proportions. Administration of 0.50 centig. of arsenious acid. Instead of this he received no straw, but barley alone. On the 22d of December he was taken with violent colics. He was dull; pawed the ground, but showed no desire to lie down; abdomen distended, loins flexible; conjunctiva slightly redder than usual; mouth dry, saliva very viscous; breath acid; respiration somewhat labored, the inspiration shorter and more frequent; pulse about normal. A drench of camphor, ether and asafetidæ was prescribed, with rectal injections; walking exercise.

Three hours later, exaggeration of the symptoms; the animal threw himself down, and tried to lie on his back; got up; remained quiet, his head hanging down, and laid down again. Conjunctiva red; pulse small, weak and quick; respiration short and irregular; tympanitis; extremities and ears cold. New drench; friction of oil of turpentine on the extremities.

In the evening, no improvement; animal worse; complete immobility; face anxious; conjunctiva pale; pulse imperceptible; respiration short and quick; skin cold all over. He died during the evening without a struggle.

At the post-mortem, made eleven hours after death, the stom-

ach was found torn at the great curvature, eighteen centimeters in length, and ante-mortem; omentum covered with remains of food from the stomach. The abdomen contained also a few of them, with a large quantity of liquids. The point of the cœcum had passed through the diaphragm, and was in the thorax. A volvulus, involving two folds of the jejunum and the anterior half of the cœcum, was exposed. The diaphragmatic laceration extended upwards and to the right, leaving on the right the pillars of the muscles, vena cava, œsophagus and the mass of the liver. In the thorax the lungs were contracted, black and gorged with blood. The pleural cavity contained a certain quantity of blood.

The peculiarities of this case consist in the presence of such serious lesions together, while they are ordinarily met separately, the absence of vomiting, though the lesions of the stomach were ante-mortem; the absence of the peculiar motion &c., position of the head, as met in cases of volvulus.—*La Presse Veterinaire*.

POST-RECTAL ABSCESS.

BY R. H. HARRISON, D.V.S., House Surgeon American Veterinary College Hospital.

This case was a fine dapple-gray gelding, seven years old, 15½ hands high. He had been shipped from Maine by rail, and when delivered in New York a large swelling over the posterior gluteal region, on the left side, was noticed. Thinking that the animal had been bruised on the journey, the owner applied cold water to the swelling; but this did not have the desired effect, the swelling increasing and giving rise to difficulty in the act of defæcation.

When admitted, the swelling was so large as to greatly disfigure the parts; it was diffused, and extended from the anterior third of the gluteal region posteriorly, and from the median line to a level with the tuberosity of the ischium. On manipulation externally, little pain was manifest, and fluctuation could not be distinctly felt. In making a rectal examination a large abscess was readily made out, fluctuation being very distinct over the ischiatic ligament. There was also a fistulous tract opening in the rectum, forward, communicating with the abscess, and admit-

ting a small catheter to the depth of several inches. Its opening was situated on a line with the anterior part of the small ischiatic notch. In every other respect the animal was in perfect health and condition. A doubtful prognosis was given, on account of the liability of the abscess extending more anteriorly into the pelvis.

Treatment.—The most prominent part of the swelling, over the ischial tuberosity, was explored with an aspirator trochar, and pus being found, an incision about an inch long was made, and a pint and a half of dark colored, thin, foetid pus was evacuated by pressure, externally and through the rectum. The cavity of the abscess was thoroughly washed out with carbolic solution injected through the incision, and escaping through the rectum. A seton was then introduced through the incision and fistulous tract and rectum, and secured externally. The following day the discharge of pus was very abundant and laudable in character. The injection of carbolic solution was continued, and the cavity of the abscess was frequently emptied by pressure several times a day. For three weeks the same treatment was observed, together with half an hour's walking exercise daily. The seton was then removed, and the discharge gradually decreased until only five drachms were evacuated during the day. For a month no special improvement had taken place, the discharge remaining about the same and continuing healthy. The patient also seemed to suffer this drain on his system with no evil results. Solutions of chloride of zinc from four grains to an ounce, tincture aloes, diluted Vilate's solution were injected, and the discharge was decreased to two drachms daily. At this period the discharge remained the same for over two weeks, when there remained only a narrow but long fistulous tract. As a final resort, a solution of from six grains to an ounce of nitrate of silver was injected for two consecutive days. The effect was almost immediate, the discharge stopping altogether, and the incision, which had been growing smaller, healed.

The patient was discharged and has since done very well. Close observation is necessary to detect the cicatrix which followed the incision.

REPORTS OF CASES

A MELANOTIC TUMOR ON THE END OF THE SPERMATIC CORD.
WEIGHT THREE POUNDS.

BY N. RECKTENWAHL.

PITTSBURGH, June 10, 1881.

Editor American Veterinary Review :

DEAR SIR:—I desire to relate an operation which I performed on the 9th of June, on a bay gelding twelve years old, the property of William Renny, of Birmingham, if you think it of sufficient interest to insert in the REVIEW.

I was called to see the horse, and on examination I discovered a tumor on the spermatic cord, and I advised the owner of the animal that an operation would be the only and best treatment I could propose. The owner, however, did not like to risk the operation, but it grew larger, and as he saw no other means of getting rid of it I was requested to operate. I then cast the horse and secured him well, laying him on his back. I made an incision over the tumor, ten inches long, and dissected it out all around up to the spermatic cord and artery. Having done this, I put a castrating clamp, ten inches long, under the tumor and on the cord, as if I was about to castrate him in that way. I then cut the tumor off, and left the clamp on for one day. I cut a vein during dissection which I twisted until it stopped bleeding. The wound bled considerably during the operation, but this I did not consider anything serious. I then allowed the horse to get up, and rubbed him off, and the owner led him home by walking. The vein I twisted opened again and bled freely, and so I applied Monsel's salt, (?) which stopped the bleeding, and I gave a wash composed of:

Carbolic acid 2 dr.,
Glycerine 2 oz.,
Aqua q s 1 pt.

to be applied with a spray syringe three times a day. On the 17th I took the clamp off and the horse was eating and drinking well. The horse did well and in four weeks the wound was healed.

FEBRIS PUERPERALIS PARALYTICA.

BY THE SAME.

I have another case at your service. On the 28th of July, I was called to see a sick cow in the country, three miles from Pittsburgh. On my arrival there I was told that the cow had calved and was doing well, and cleaned well, and everything was all right that day, but she became sick on the morning of the 28th, and I found all the symptoms of febris puerperalis paralytica.

Symptoms: The cow was down and not able to get up. Her head was in her side, and her eyes cloudy and watery, pulse feeble, 75; skin cold. The cow was restless and tried to get up, but could not do so. The bowels being very constipated, I prescribed:

No. 1.	Magnes. Sulph.	1 lb.,
	Potas. Nitrat	2 oz.,
	Tart. Stibi	2 dr.,

to be dissolved in two quarts of water, and to be given within two hours; two hours after this was given I prescribed:

R	Fl. Ex. Valerian	4 oz.,
No. 2.	Aqua Ammon.	1 "
	Spts. Nit. Eth.	4 "
	Fl. Ex. Hyosciamus,	1 "

Mix and give one-fourth part every two hours, in one pint of linseed oil.

On the 29th I found her very low, as she had tumbled out of her stable. She was put back again into the stable but had become so weak as to be unable to lift her head. I ordered the same as No. 2, without the linseed oil; I saw her the same night at 10 o'clock, when I gave her:

R	Soda Sulphas.	1 lb.,
	Pd. Nux Vomica	1 oz.,
	Tart. Emetic	4 dr.,
	Olei Lini	4 oz.,
	Olei Croton	15 drops,
	Aqua	1 pt.,

Mix, and give one-fourth every three hours. She could

swallow only a little at a time, but care was taken, and the medicine was given according to directions. I backracked her and injected her, per rectum with

Decoction Cammomile 2 qt.,

Olei Lini 4 dr.,

Laudanum 1 oz.,

Injected into the uterus a lotion compounded of

Acid Carbolici 2 dr.,

Olei Lini 2 oz.,

Decoction Cammomile 2 pts.,

I then left her, with no more hopes of her recovery and I did not go to see her on the 30th, when, to my surprise, I was called on the 31st, and was told that she had stood up and had a free passage from her bowels and had urinated a large amount of water. When I saw her she took a drink of gruel and picked a little hay, and kept on improving, and is now doing well. July 31st I had to see another cow with the same fever, but she could swallow well. I gave the same treatment and she got up the next day and is also doing well.

CEREBRO SPINAL MENINGITIS.

By BENJ. MCINNES, JR., M.R.C.V.S.

In the past week my services have been required in four cases which I will endeavor to describe.

1. A mule, the property of a gentleman residing about three miles from the city. When I arrived the animal was dead. The owner related to me the following symptoms: The mule was attacked suddenly with tremors, profuse perspiration, opening and closing mouth, perfect inability to swallow. He died in six hours after commencement of the attack. The animal was perfectly healthy up to that time. I diagnosed poison from eating wild oranges, but the farmer informed me that his mules could not get wild oranges, as they were never turned out.

2. Three days after the first case the same farmer came down saying he had another mule attacked the same way. Being out

of the city, I could not be found, and he returned home to find the animal dead. The duration of this case was about twelve hours.

(Residing on an island, about five miles from Charleston, I usually go over to the city about 5 o'clock in the afternoon, returning the following morning at about 9 o'clock, leaving my father to attend to any cases that may occur during my absence.)—Last evening, my father was requested to see a case with this history :

3. The patient was a mare. She was in our shoeing shop yesterday morning, and seemed quite well, but during the afternoon, (having been driven steadily through the day,) she appeared to become weak in her hind quarters, and before her owner could get her home, she gave out entirely, and upon arriving at the stable, fell down without the power to regain her feet. She perspired profusely. On my arrival in the city this morning, I went to see her immediately. I found her down, on her right side. She still perspired freely ; the surface of the body was hot ; the pulse strong and quick ; she moved her head and her legs with much strength and frequency ; the tongue hung from the partly-opened mouth, from apparent inability to control the parts ; the power of deglutition seemed entirely lost—my father stating that on administering a stimulating ball, she was unable to swallow it, and it remained in the œsophagus. She died in about a half-hour after my seeing her, and in from fifteen to seventeen hours from the commencement of the attack.

4. Pony, driven to baker's cart, came on Saturday last, owner saying that pony was not well, and had gone through his work very lazily that morning. I administered a stimulating ball, and sent him home. When my father called to see him that night he had considerable difficulty in swallowing liquids, and could not be made to swallow a bolus given him. On Sunday I found him quiet, but lying down a great deal at full length—temperature 101. I had ice put on his head, and prescribed tinc. aconite and belladonna, in small doses on the tongue, every hour. He died about forty-eight hours after the commencement of the attack.

After seeing this case I was inclined to attribute the trouble to

the heat of the weather. But on seeing the case this morning, and from the history of the mules (1 and 2,) which had not been worked in from four to six days before the attack, and as in none of the cases was there the slightest *swelling of the throat*, I have come to the conclusion to diagnose this disease as "cerebro-spinal-meningitis." I thought just now that I would look up Williams on the subject, but find nothing but the description of the disease by Dr. C. P. Lyman, as it appeared in New York, in 1871. He does not speak of any affection of the throat.

CORRESPONDENCE.

SPINAL MENINGITIS IN SPRINGFIELD, MASS.

SPRINGFIELD, MASS., July 23d, 1881.

Editor American Veterinary Review:

DEAR SIR:—I wish to give you a few notes concerning the disease which has been somewhat rife here this season; not that the notes are of any value or interest, but simply because I said I would do so. Spinal Meningitis (?)

It appears to be a febrile disease characterized by paralysis, partial or total, of the posterior extremities. It is epidemic in its nature, and from what I have seen and can ascertain, it for the most part affects mares; and as the urino-genital organs are usually affected, perhaps the question might be asked, is the condition of œstrum in any way predisposing to the disease?

The premonitory symptoms are febrile, temperature 102° to 103° usually, respiration hurried, pulse quick and small, slight running at nose, etc. Usually in two or three days' time there is a stiff, straddling gait in the hinder limbs, followed by loss of power, it may be, so that the animal is unable to stand. If the premonitory symptoms are neglected, not unfrequently the animal will fall down in harness, in which case the result is often unfavorable, whereas if taken in time, recovery would seem to be the rule. The appetite is singularly good, and beyond the facts above stated there is but little disturbance. In one case only was there a violent *natural* perspiration, and as this was a bad case, and made a

very rapid recovery, the indication is perhaps of some value.

The duration of the disease is variable; six or seven weeks, or even more, may elapse before the affected parts fully recover their functions, but the crisis appears to occur about the fourth or fifth day after the manifestation of the stiff gait.

The treatment adopted is simple: fever treated *secundem artem*. Camphor liniment with ammonia and turpentine to the loins is beneficial—mustard seemed to cause too much irritation. In the case above referred to, which recovered rapidly, the irritative symptoms were so violent, with rigors and fearful perspiration, that being unable to stay with the animal, I injected hypodermically atropine one grain, and morphia three grains, with exceedingly good results. After the crisis, iodide of potassium alternated with nux vomica exerts a useful influence in aiding recovery of functions in hinder extremities.

Post mortem.—Opportunities wanting, therefore details meagre. Intense congestion in hind quarters and pelvic organs, with inflammation of genital organs; spinal cord probably implicated about the lumbo-sacral plexus. Opportunity wanting for *careful* examination.

These are the chief items that occur to me, but I shall be glad to add anything I may have forgotten.

I. VAUGHAN.

VETERINARY MATTERS IN AGRICULTURAL AND DAILY PAPERS.

EDITOR AMERICAN VETERINARY REVIEW:

We read almost every day in some of the agricultural or daily papers of veterinarians who have been made investigators of certain diseases, and particularly when such diseases have assumed an enzoötic or epizoötic form, while it is seldom or never that these investigators give the results of their labors where it would seem evidently to be due, *i.e.*, in *veterinary* journals.

Why this is so, or rather, why it should be so, is a question we may well ask.

Perhaps it will be answered by saying that the diseases which they have been called upon to “investigate” prove to be but or-

dinary disorders, that may be seen in the daily life of any average veterinarian, and therefore not worth reporting to a veterinary periodical.

But do we not make a mistake right here, in more than one particular? Should not the contents of a veterinary journal be diversified? Must we not, to have a readable, interesting and valuable paper, present to our readers other than the writings of the most eminent scientists among us? I do not mean that our pages should be filled with inferior matter. I do think, however, that after reading an article by Pasteur, Colin and many others, we should find reports of interesting cases—reports that embody the history, treatment and the results of the special treatment adopted in each particular instance. Again, are those diseases and their medication, which we call common, thoroughly understood by us? Is there not in an enzoötic of influenza, even, valuable and useful matter to be learned in relation to existing conditions and surroundings, that may give us new light and serve to aid us in determining questions of etiology, infection, contagion, &c.? If such a disease exists, it is the duty of the veterinarian who may be called to recognize it, to ascertain not only *what* the disease is, but *why* it exists; why it should be confined to a certain territory; what are the local causes or defects that are producing the disease.

Besides all this, a veterinary journal, above all others, should be made acquainted with the history of existing diseases, whether “common” or otherwise.

Let each member of the profession, and especially those who practice in agricultural districts, report the outbreaks of Texas fever, swine-plague, pleuro-pneumonia, glanders, etc., that may have come under their observation during the present summer, and thus allow the readers of the REVIEW to judge as to the wisdom of such a course.

A. E.

BIBLIOGRAPHY.

ELEMENTS OF CHEMICAL AND MICROSCOPICAL ANALYSIS IN THE DIAGNOSIS OF THE DISEASES OF DOMESTIC ANIMALS.

This little work, which covers 266 pages, the fruit of the pens of Dr. O. Siedamgrotzky and V. Hofmeister, has been translated into French by Prof. J. M. Wehenkel, of the Belgium School, and Mr. C. Siegen, Veterinary Surgeon at Luxembourg.

If it was ever proper to say of a book that it filled a much-felt want, this is one of the best occasions for the remark, and for this reason the two translators deserve much credit for having made the work accessible to those who are unacquainted with German but who understand French. We hope that some English writer may be found who will give our English-speaking people an opportunity to appreciate the value of the work.

Following the introductory remarks of the translator and of the authors, the book opens by treating of sundry generalities in the use of the microscope, and with the alterations which may be commonly met with, caused by the presence of foreign bodies in microscopical preparations. The third part comprises a few short but appropriate generalities upon chemical analysis.

The following seven chapters are devoted to the physiological and pathological aspects presented by the different secretions, including the blood, milk, mucus, urine, fœces, pus, and the microscopical examination of the skin.

The work concludes with a few pages on food, water, meats and milk.

The chapter on urine is very carefully written, and in the seventy-six pages it occupies, forms an excellent treatise upon this important secretion, so commonly overlooked by veterinarians in making their diagnosis of disease.

Some fifty wood engravings furnish illustrations of the elements of chemical and micrographical analyses, with which every veterinarian ought to be familiar.

LA PRESSE VETERINAIRE.

This is a new monthly, independent, veterinary journal, published in Paris, under the direction and with the assistance of several veterinarians. Each number contains about forty pages of interesting articles, relating to pathology, jurisprudence, professional subjects, and reports of societies.

It is, we believe, the sixth veterinary journal published in France. We tender the *Presse Veterinaire* our sincere wishes for its success.

NEWS AND SUNDRIES.

ANTHRAX IN LOUISIANA.—*The Planter's Journal*, of New Orleans, speaks of the prevalence of a form of anthrax affecting horses and mules in the vicinity of Pointe-a-la-Hache. Swellings or tumors appear on different parts of the animals, which, if not early controlled, rapidly increase and cause death. The loss so far is about thirty-five head.

A GREAT NUMBER of horses at La Salle, Ill., are affected with a disease which, from newspaper reports, is presumably influenza. But few deaths are reported.

THE NUMBER of sheep in Nebraska has in six years increased from thirty thousand to nearly two hundred thousand.

THE "SIBERIAN PLAGUE" has broken out in some parts of Eastern Russia, and is said to be attacking the human as well as the bovine species.

The Medical and Surgical Reporter, of Aug. 6th, contains the following:

TRICHINOSIS IN AMERICAN HAMS.—A strong opposition to the use of American hams is becoming manifest in Europe. At the meeting of the German Public Health Association, in Berlin, in June, the Director of the Royal Veterinary School, Prof. Roloff, gave a very unfavorable opinion against them, saying, that from

one to four per cent. are found trichinous. The Hungarian Council of Public Health have officially recommended that the importation of American swine flesh of all kinds into the kingdom be forbidden. Of three hundred American hams examined in one house at Hamburg, eight were found trichinous.

THE REMARKABLE YOUNG MARE, Maud S., has lowered her record this season from 2:10 $\frac{3}{4}$ to 2:10 $\frac{1}{4}$. Intelligent training and heredity have done much to increase the speed of the American trotting horse.

THE *Turf, Field and Farm*, of Aug. 12th, advises as a safeguard against rabies, "free exercise in the open air, clean bedding, renewed frequently, ready access to cool pure water, and a plain, simple diet, with but a moderate quantity of meat during the hottest Summer season." It wisely adds: "If a dog is not worth this attention, 'shoot him on the spot,' and it might also suggest "avoid the biting of another mad dog."

A NEW HORSE.—M. Poliakoff, the distinguished Russian naturalist, has examined a horse presented by Colonel Prewalsky to the St. Petersburg Academy, and decided it to be a new species, which he has named *Equus Prejwalskii*. It appears that the new representative of the family of undivided-hoofed mammals is in some respects intermediate between the domestic horse and the wild ass, but it differs from the assinine genus in having four callosities, one on each leg. In the form of skull, absence of dorsal stripe, and other particulars, it resembles the domestic horse. This newly-recorded animal is indigenous to the plains and deserts of Central Asia, and has not hitherto fallen under the dominion of man.

APPOINTMENT OF AN ENTOMOLOGIST.—Prof. C. V. Riley has been reappointed to the position he formerly occupied as Entomologist of the U. S. Department of Agriculture, and his selection will be applauded by all who know his eminent fitness for the post.—*The American Farmer*.

SOME idea of the immense flocks of sheep owned by "squatters," in New Zealand, may be inferred by the following, mentioned in a recent *Government Gazette*, published at Canterbury, N.Z.:

Robt. Campbell has 386,000 head ; Dalzell & Co., 208,000 ; Geo. Henry Moore, 90,000 ; Clifford & Wild, 80,000 ; Mr. Ketchum, 80,000 ; Mr. McLean, 50,000 ; Wm. Robinson, 68,000 ; Sir Dillon Bell, 82,000.—*Farmers' Review*.

THE SOCIETY FOR THE PROMOTION OF AGRICULTURAL SCIENCE will hold its annual meeting at Cincinnati, on August 16th, when a number of able papers are to be read by the members, most of whom are eminent chemists.—*The American Farmer*.

THE *National Live Stock Journal* mentions an English mare that at 21 years of age gave birth to three foals. The first of these was born dead ; last two are living. Two years previous to this the same mare gave birth to twins.

THE following is the number of cattle exported from the Island of Jersey to England and the United States during the six months ending June 30, 1881 :

<i>Shippers.</i>	<i>Cows.</i>	<i>Bulls.</i>
Eugene J. Arnold.....	486	20
Francis Le Brocq.....	325	6
Sundry shippers.....	21	2
Total.....	832	38

IN JUNE the famous old mare Goldsmith Maid dropped her third foal, a bay filly, by Gen. Washington, son of Lady Thorne. The other two foals were colts, and the first, dropped in 1879, was killed in trying to jump a fence, Aug. 3, 1880. Goldsmith Maid is now 24 years old.—*National Live Stock Journal*.

THE Cattle Commission was permanently organized, with Prof. James Law, of Cornell University, Chairman, and J. H. Sanders, of the *Stock Journal*, Chicago, Secretary, at Saratoga, Aug. 12. All communications referring to the business or work of the Commission must be sent to the Secretary at Chicago. They decided to make a searching investigation at the great Western centres of the cattle trade to ascertain whether those points are free from infection.

A DISEASE, the nature of which is unknown to stock-owners,

is reported as existing extensively among cattle of Charleston and Lincoln, Ill. The eyesight is affected and total blindness results.

HEREFORD CATTLE were first brought into this country in 1815 by Henry Clay. They were kept on his farm in Lexington, Ky.

PYÆMIA IN CATTLE.—In connection with the reported disease among cattle in Nova Scotia, it has been learned from official sources that for the past twenty years the disease reported prevalent has been purely local in its effects. It is infectious without being contagious. The difficulty has been in the superficial burials, and carcasses having been dragged instead of being carried have caused a spread of the disease. The best preventive is absolute cremation. The malady lasts about twenty-four hours, the symptoms being lameness in the hind quarters, and afterward a general swelling. The diagnosis of the disease has established beyond question that it is merely a case of blood poisoning.

THE *Massachusetts Ploughman* states that Dr. Thayer has been ordered to Nova Scotia, to investigate the reported disease existing among cattle in that region. It is generally believed to be a blood disease, and confined to a certain area in the county of Pictou.

THE NEW YORK CITY PAPERS report a fatal disease as attacking horses in Brooklyn. It is, in all probability, nothing more than influenza.

LARGE COLT.—Mr. Moreland, of Covington, Ky., has a four-year-old horse colt that measures 21 hands in height, and weighs 1,900½ pounds. He is said to be well built and very active.

A HORSE COMMITS SUICIDE.—An old horse belonging to a Mr. Saunders at Fishkill Landing, came out of his owner's barn a few days since, and stood for a few minutes looking out upon the water. He then went back, and in a few moments came out again, went deliberately to the water, waded into the cove that is inclosed by the Hudson River Railroad track, swam through the culvert under the railroad and out into the channel of the river. A man working on the New England Railroad pile-driver saw the manœuvres

of the horse, and putting out in a small boat, brought him back. On reaching the shore the horse persistently refused to go on dry land. He lay down in the water, floundered about and apparently tried his best to drown himself by keeping his head under water. This he finally accomplished in water not deep enough to cover his body.—*Turf, Field and Farm*.

THE SUBJECT of castrating cows is being brought prominently before the public at present, and the advantages to be derived from it are more fully understood and appreciated. E. F. Brush, through the *New York Medical Record*, earnestly urges this operation.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—*Veterinarian*, *Veterinary Journal*, *Clinica Veterinaria*, *Revue für Thierheilkunde und Thierzucht*, *Archives Veterinaires*, *Recueil de Médecine Veterinaire*, *Journal de Zoötechnie*, *Revue Dosimetrique*.

HOME.—*American Agriculturist*, *Turf, Field and Farm*, *Prairie Farmer*, *National Live Stock Journal*, *Medical and Surgical Reporter*, *Medical Record*, *Maine Farmer*.

JOURNALS.—*Iowa Farmer*, *Ohio Farmer*, *Practical Farmer*, *Ploughman*.

CORRESPONDENCE.—T. B. Rogers, C. B. Michener, E. A., B. Melnes, Jr., N. H. Paaren, A. A. Holcombe, I. B. Foote.

AMERICAN VETERINARY REVIEW,

OCTOBER, 1881.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 229.)

CORNS.

Under this name is understood an alteration of the tissues underneath the hoof; of the heels of the horse's foot by lesions of the living parts in the movements of expansion of the hoof; by bruises, compressions or contusions. There is then a capillary hemorrhage which extends in ecchymosis in the hoof. A corn, then, is a bruise of the living horn at the extreme end of the branches of the sole, and especially in the laminated tissue of the fold of the bars. It is a very common disease, and one to which all horses are exposed. Some have them constantly.

Corns are seen mostly on the fore feet, and on the inside more commonly than on the external side. They are rare on the hind feet, because in the various gaits the weight of the body is carried more on the front legs and on the posterior part of the foot, while in the hind legs it is the front part which principally receives it.

I. *Divisions*.—Lafosse Sr. has distinguished them into *natural and accidental*, while Girard considers them all as *accidental*. H. Bouley designates as *essential* those which come from other than external causes. We believe that it would be better to establish the divisions on pathological and anatomical bases, and admit a *corn of the wall, or laminated*, that which has its seat in the laminae which unites the wall to the tissues underneath, viz., in the keraphyllous and podophyllous tissues of the heels and bars; and a *corn of the sole, or velvety*, that which has its seat in the velvety tissue which unites the sole to the fleshy parts. The laminated corn corresponds exactly to the “natural” of Lafosse and to the “essential” of Bouley. It is due to lacerations in the movements of expansion of a badly made foot. The other is due to contusions. Whatever may be the adopted divisions, we, with Girard, and as admitted in practice, recognize in each category the *dry*, the *moist* and the *suppurative* corn.

II. *Etiology*.—All feet are exposed, but not all predisposed to corns. They are more frequent in heavy feet, with those where the heels are high or contracted, in which there is a motion of retraction of the hoof which interferes with the displacement backward of the third phalanx at the time of rest, and hence the lacerations are easy; besides, there is a continual pressure upon the living parts of the posterior region of the nail. Corns are frequently observed in excessively long feet, where the hoof does not receive the moisture necessary to its elasticity; it then loses its suppleness and fails to assist the internal motions of the parts contained within. It is seen whenever the hoof is too dry, the posterior diameter of the foot being then diminished. Corns are seen on weak feet, on which the hoof is too thin to resist the dilating effect of the internal structure, and spreads excessively. Wide and flat feet, with low heels, in which the inferior surface of the branches of the sole is on a level with the plantar border of the quarters and bars, are very often affected with corns. The pressure of the shoe, or the roughness of the ground produce these bruises through the sole. Here the conditions are unfavorable to the normal dilatation of the hoof; the ungual phalanx, being unsupported by the convexity of the sole, has a tendency

to drop down lower, the tissues are easily lacerated and bruised in its displacement at the time the foot rests on the ground.

The most serious causes of corns arise from shoeing, which not only sometimes gives to the hoof a shape predisposing to that disease, but also very often is a determining cause itself of these injuries. "As long," says Hartmann, "as horses will have corns, horse-shoeing can not pass as an art, and their too frequent presence is an evident proof of our imperfect means of protection to the hoof." Without shoeing there would be no corns, and it is in its irrational methods that the true causes of these accidents originate. It is by the greater or less frequency of corns that one may judge of the state of that art in a country.

The faults are found, 1st, in the manner in which the foot is pared, or in the shape which it receives; 2d, in the fitting of the shoe; 3d, in its application. In paring the foot, the sole is often weakened, and thinned too much; it does not resist the pressure, and, at the time of resting the foot, all the weight of the body is thrown upon the point of union of the sole with the wall. Ordinarily too much has been cut away from the frog, and this not resting any more on the ground, no longer resists the pressure, and the lowering of the branches of the sole is then extreme, as proved by the experiments of Leisering. The custom of cutting the corns, and of cutting the hoof at the heels, acts in a similar manner; the posterior half of the foot is weakened, and that is the part which must carry the greatest part of the weight. One needs only to compare a foot from which the shoer has removed much horn at the sole, frog and bars, with one in which the hoof has been left alone for a long time. In making a vertical and transverse section of the two in the middle of the frog, a little in front of the angles of the sole, he will see at once how weak the point of reunion of the sole with the wall has become, the means of resistance to the pressure of the weight of the body through the third phalanx being thus diminished, and consequently a predisposition to bruises created.

The shape of the shoe also contributes to corns; an excess of concavity; a shoe which from the last nail-hole is not flat to the heels, whose branches are too much inclined, contributes to the

lateral contraction of the foot, and gives rise to corns. In this case the shoe resists the play of the horny box, and by itself, through the sole, exercises a great pressure upon the tissues underneath. Too high caulks, in preventing the resting on the frog, cause an excessive pressure on the inside of the foot, and compel it to rest on the heels and the branches of the sole, which are too much lowered. The opposite excess, when the shoe is thin at the heels, as in the Coleman shoe—when it is thick at the toe and thin at the heels—produces a similar result, because in increasing the pressure on the heels, it gives rise to bruises of the tissues through the retroussal processes, which come down too heavily. A very wide shoe, too thin, may also contribute to the genesis of corns, because then, the shoe helping, with the intensity of the reactions on the pavement or on too hard and stony roads, the shoe soon gives under the foot, and compresses the sole and tissues beneath.

The manner in which the shoe is put on may also be a cause of corns; the shoe ought to rest exclusively on the inferior border of the wall, and not touch the sole; when it is too narrow it may be a cause of contusion or of contraction; if too wide it prevents the natural expansion. It is upon horses long shod that the wrong application of the shoe as a cause of corns is observed. As a consequence of the growth of the hoof, the shoe no longer sufficiently protects the plantar border of the foot, the heels of the shoe being inward and pressing on the branches of the sole; this is especially the case when the shoe is thinned by wearing; it yields, and easily bruises the parts of the sole on which it rests; high caulks, on a branch already too short, or too thin, act the more injuriously in this way, because, not being concentrated on the projection of the caulk, the branch gives way sooner, and presses still more on the heels.

The shoe becomes an indirect cause of corns, when hard substances, as stones or dry earth, are found between its superior and inferior face on the sole, or between the frog and the internal border of the branches of the shoe; this is a secondary cause, which was formerly considered of great importance.

The work of horses has a great influence; corns being very

frequent in horses which work on pavements and stony and hard roads. They are rare in country horses, but common in those of great cities; a rapid gait contributes to their development on account of the great pressures on the ground. The seasons have also an influence, dry and warm weather depriving the hoof of its moisture, and by preventing its elasticity of motion, increasing the effect of pressure on the tissues.

Emigration has been considered a cause of corns. Horses coming from the north of Germany are mentioned as having been rapidly affected by them after being in large cities. But if the change too suddenly made from soft to dry bedding is an effective cause, the mode of shoeing can also be considered as a stimulating cause. The same is true with respect to the African horses, which are generally free from the disease in their native country, but frequently suffer with them when brought to France and submitted to a mode of shoeing so different from that of the Arabs.

III. *Symptoms*.—The ordinary symptoms of corns are noticed in the abnormal position of the leg at rest, in the lameness and the sensibility of the region.

When lame with a corn the horse carries the leg forward of the plumb line, and keeps it semi-flexed at the fetlock; he tries to relieve the painful region by resting; sometimes he manifests his pain by pawing and moving his feet from forward backwards, pushing his bedding under him. The lameness is not characteristic; it varies greatly in intensity, from a slight soreness to lameness on three legs. It is generally proportioned to the intensity of the disease. However, there are horses so accustomed to their corns that they do not go lame, while others are very much so for a trifling injury. Sometimes it is intermittent, and diminishes when the suppuration has made its way between hair and hoof. The sensibility of the heel—seat of a corn—is discovered by an exploration with the blacksmith's nippers. Sometimes it is made known by pressure of the fingers, the cases varying, of course, according to the severity of the disease. There is often heat, especially at the coronet, which may be tumefied, particularly so when the corn is of a complicated suppurative character. To

obtain an accurate view of the disease the foot should be well pared, and this operation may be greatly facilitated by the application of poultices for twenty-four or forty-eight hours previously.

It is only by the objective examination and the pathological anatomy, so to speak, of the corn that the moist or suppurative variety can be distinguished from the dry; and we shall find either a simple ecchymotic spot, or a complete disintegration of tissues.

(*To be continued.*)

RESUMED STUDY IN ANTHRAX.

CONSIDERED FROM THE POINT OF VIEW OF SANITARY POLICE.

BY PROF. DESSART.

(*Continued from page 234.*)

D.—ANTHRAX OF SWINE.

(*a*) *Without external localizations—Apoplectic Anthrax* *—Sudden deaths of swine, attributed to apoplectic anthrax, are quite common in our country †.

The disease is recognized at post-mortem investigations. The affection lasts, however, but a short time—two or three hours—and exhibits symptoms analagous to those which accompany carbuncular typhus of cattle and sang de rate of sheep. The subject becomes stupefied, and soon experiences great prostration. Its walk is staggering, and has general tremblings and bloody vomitings. The peripheric temperature is sensibly lowered, especially that of the extremities, and then follow grinding of the teeth, convulsions and death.

(*b*) *Anthrax with external manifestations—Gangrenous Erysipelas*.—The symptoms are about the same as those of the preceding form, in the cases where the disease does not too rapidly prove fatal. The evolution of the symptoms is always, however,

(*). Carbuncular Apoplexy of Roll.

(†). Belgium.

less rapid, affected animals often resisting beyond twelve hours. There are rare cases when it lasts as long as the second or third day. The sick animals are, nevertheless, generally affected with paresia, or paraplegia, from the first hours of the disease. But what, from a symptomalogical point of view, characterizes the disease is the gangrenous erysipelas—that is, the appearance in the course of the disease of spots, at first red, then purplish, upon different parts of the body and legs, principally about the neck, chest, belly, fore-arm and thigh. These increasing, join together and form gangrenous spots, covered with phlyctens. At the same time the subcutaneous cellular tissue of the regions where they exist becomes inflated and the skin sloughs off in large pieces.

Anthraxoid Angina.—This form of anthrax in swine is slower in its development. Ordinarily the subjects afflicted succumb only after the second or third day. Independently of the ordinary symptomatic manifestations of anthrax, as prostration, anorexia, dyspnœa, cyanotic skin and mucous membranes, grinding of the teeth and flaccidity of the ears and caudal appendix, anthracoid angina is characterized by the development of a carbuncular tumor about the inferior portion of the parotid region on one or both sides. This tumor is generally not voluminous. It rapidly assumes a purplish or blackish aspect, and its sensibility at first is very great. The hairs which cover it are grouped together, and become hard, and their pale color contrasts strongly with the dark coloration of the skin. In some cases there is, properly speaking, no tumor, but instead a black, limited spot.

It sometimes happens that other localizations appear on the tongue, which become black and gangrenous (glossanthrax), or extends to the whole buccal cavity (stomanthrax). In other circumstances the affection is complicated with anthracoid angina. There is then a purplish and diffuse tumefaction of the neck, with the ordinary character of carbuncular enlargements. This tumefaction extends sometimes to the chest, shoulder and to the fore-arms.

III.—DIAGNOSIS OF ANTHRAX AFTER DEATH.

The above described symptoms establish the diagnosis of an-

thrax during life. They give to it a character of positive certainty if the blood, or any other liquid taken from the patient, contains bacterias or their germs. The use of the microscope, with a sufficient magnifying power, is indispensable, if we would recognize the presence of these organisms.

But the rapidity with which many of the animals die often renders it impossible to distinguish the symptomatic disorders. It is therefore only after death that the diagnosis can be established.

The *post mortem* diagnosis of anthrax is based upon the external signs exhibited by the cadavers; upon the anatomo-pathological alterations of the fluids and tissues; the presence of the bacteridies in the economy, if looked for before putrefaction has begun; or of their corpuscle-germs, if already phenomena of putrid decomposition exist; upon anamnesis; at last, in case of doubt, upon experimental inoculation. Let us consider these different points.

1. *Cadaver*.—The body of the animal which has died of anthrax decomposes rapidly, especially if it has not been *emptied* immediately after death. It also cools off quickly, and becomes tympanitic in a few minutes. The natural openings, such as the mouth, nostrils, vulva and anus remain open, and allow the escape of bloody matters—blackish, mixed with mucosities and excrementitious products. Apparent mucous membranes are infiltrated, ecchymosed, and, at times, strongly marked by wide, black maculation. The hairs of the body, neck and tail are easily pulled out. The external localizations are found with their already described aspects. Where they exist there is subcutaneous emphysema, due to the formation of gasses, the beginning of the putrefaction of the histological structure and of the fluids moistening them.

2. *Alterations of fluids and tissues*.—The blood is much changed in its physical, chemical and histological qualities. It is black, adhesive, and incoagulable, and is always destitute of fibrin. The proportion of carbonic acid is enormously in excess. The hermaties, altered in form, are as if torn upon their borders or outlines, and they gather more together. Bacteridies appear,

ordinarily in great numbers, under the microscope. The urine, lymph, as well as the abundant serous, or gelatiniform exudations which lubricate the tissues and the carbuncular localizations, internal as well as external, have a reddish or brownish color, and are nearly always very rich in bacteridies. The diseased *lymphatic glands*, especially those closed at the points where the introduction of the microbes has taken place, are blackish or brownish. Their structure is soft and disorganized, and, so to speak, saturated with those organisms. The *subcutaneous and interorganic cellular tissue* is œdematous in large places, and often the seat of great bloody extravasations, more or less circumscribed. Generally the *muscles* are also full of bloody serosity, and upon transverse section, present hemorrhagic centers of very dark color. Sometimes entire groups of muscles are softened, and present a black or dark red aspect, while others are very pale and easily torn, as if they had been boiled in water. In the majority of cases, these various alterations are especially apparent in the anterior parts, as the maxillary space, the throat, neck or chest. The parts between, and those posterior, are not, however, entirely free from them. Indeed they are sometimes more diseased than the anteriors. The *heart* is also diseased. The clots which it contains are always black and of little consistency. The endocardium is almost always ecchymotic and maculated with the coloring matter of the blood. The myocardium is soft and pale. The pericardium presents alterations analagous to those of the endocardium. They are also found in the serous membrane lining the blood vessels. The *capillaries* are gorged with blood and are sometimes upon large surfaces closed by true embolisms, due to the accumulation of the bacterides. The nervous apparatus is also diseased. It offers lesions easily observed; congestion and inflammation of the meninges, of the encephalic substance, and sometimes of the encephalo-rachidian axis almost in its whole length. Similar lesions are found in the lymphatics of the sympathetic system. The alterations of the *viscera* proper are not less numerous or remarkable. These organs, especially the liver, spleen and kidneys, are, in most cases, gorged with blood and softened. The spleen, especially in sheep and cattle, is ordinarily

much increased in size. It is often reduced to a kind of black pulp, which would run out through the peritoneal sheaths were it not for its fibrous envelope. The intestine is frequently the seat of infiltration, diffused or circumscribed. The lungs also present alterations similar to those of the abdominal organs.

It is scarcely necessary to remark that all these morbid lesions are not always found in all cadavers. Neither do they exist to the same extent in all, the difference being due to the greater or less rapidity of the termination of the disease. They depend, also upon the type of the affection, leaving aside the rapidity of its march. Evidently, apoplectic cases will leave less marked lesions than those observed in other cases.

3. *Bacteridian Microbs.*—It is principally in the state of mycelium, or rods, that they are found in the economy. When germs are seen under the microscope, it is with the characters already described.

In order to verify the presence of the microbs, fluids already in process of putrefaction must be absolutely rejected, for as soon as the phenomena of putrid decomposition begin to take place, the *bacillus anthracis* dies and breaks up, and gives place to the *bacillus subtilis*, the microbe of putrefaction. It is very difficult, if not impossible, to establish the distinction between the germ corpuscles of the latter and those of the former, which, contrary to the rods, preserve perfectly their vital resistance, even in a medium in full putrid fermentation.

The criterion of anthrax upon the cadaver, we have already said, is the presence of the bacterides in the mediæ of the organism. But, to avoid in practice all unwarranted interpretation, it is necessary to add that *post mortem* researches, having for their object the discovery of the characteristic rods, are valuable only when made upon the cadaver a very short time after death.

No special preparation is necessary for the examination of the blood of an animal supposed to be carbunculous. A very small quantity is placed between two glass slides upon the stage of the instrument. This is quite sufficient. Bacterides are seen in the mycelium state, placed between the blood corpuscles, sometimes agglomerated in great numbers, inter-crossed so as to form a thick

network; at other times isolated or in small groups.

4. *Anamnesis*.—The knowledge that other morbid cases, considered as being of a carbuncular nature, have been found in the district, is, in the absence of the microbes, noticed at the proper time—an element of diagnosis whose importance cannot be overlooked.

5. *Experimental inoculation*.—This remains as a last means to banish all doubts in cases where the bacteridian microbe has failed to be discovered. The rabbit, on account of its low cost and of its great receptivity, is the best animal to use for that purpose. The operations may be made in different ways. Two principally deserve mention, on account of their simplicity and facility of execution. They are also very practical. In one, the base of the ear or the flat of the thigh is pricked with a lancet dipped in the suspected blood; in the other the blood, lymph, or serous exudations of suspected animals is introduced into the subcutaneous tissue. It is necessary in all cases, and we insist on this point, to be sure that the fluids of inoculation are still fresh. If this recommendation is neglected, septicæmia, instead of the carbunculous disease, will be produced.

(*To be continued.*)

CASE OF POISONING FROM STRYCHNIA.

By W. H. HOSKINS, D.V.S.

On the 4th of April I was summoned in great haste to see an animal some distance from my home. After endeavoring to find out the history and some of the symptoms, with but little or no success, I started off. On reaching my patient, which proved to be a handsome cream-colored gelding, 16 hands high, coming 7 years old, I then learned that he had been in excellent health for some time past, and was known to have been in that condition on the evening of April 3d, when he was last seen by the owner. On the morning of the 4th he was noticed to be in great pain, refusing to eat or drink, and when the owner, a few hours after,

attempted to give him a drench of whisky, he failed, finding his jaws barred as it were, from all entering; his condition grew worse until noon, when I reached him. On entering the stable I found him standing with the fore and hind extremities very far apart; the neck was protruded, his face presenting a very anxious appearance; he pawed with the fore feet alternately, and struck at the abdomen very violently with the hind ones; the muscles of the neck were noticed to twitch very much, and he would occasionally utter a low groan; he was profusely salivated, the saliva running from both commissures of the mouth in streams; the eyes were dull, but their mucons membranes, and of the nose likewise, highly injected, the nostrils being widely dilated; his tongue appeared very red and swollen; the ears and extremities were very cold; his pulse beat very hard and about seventy to the minute; his respirations were very difficult and about fifty in number; his temperature a little above normal; upon pandiculation he would not give any whatever. Some of these symptoms came on every few minutes, becoming more and more violent. At times he would rush forward in his stall, placing his fore feet in the manger, and then back to the end of his halter strap, after which there would appear a period of rest. Feeling somewhat uncertain as to what these symptoms indicated, though tetanic in character, I told the owner I would prefer to wait until the following morning before making a diagnosis, though feeling pretty positive in my own mind that it was a case of pseudo tetanus, superinduced by an overdose of strychnia; for note the absence of the throwing out of the membrane nictitans, which could not be forced out by violent motions; the profuse salivation; the severe abdominal pains; the spasms coming on every few minutes, during which the muscles of the neck were noticed particularly to twitch; his tail remaining pendant, though a general stiffness of the body prevailed; the sudden appearance of these symptoms and their aggravated character from the first. True, I must acknowledge that our learned professor on *Materia Medica* has told us that in poisoning by strychnia we never have any trismus, but here it was quite well marked.

I had the horse moved to a large stall in one corner of the

stable; this was darkened as much as possible; he was warmly clothed, and ordered that perfect quietness might prevail. I ordered belladonna and alcohol in his water, with a bucket of gruel containing chloral hydrate and gentian, but he never took any of either. I allowed but one person to go near him to attend his wants.

The next morning I found him worse, every symptom seeming to be aggravated in character, with no appearance of any new ones. I then made a diagnosis of strychnia poisoning, and was informed that they had lost another horse, about a year before, with similar symptoms, but no post-mortem was held. On my first visit I made an examination of his food, watering trough, &c., but found no traces of any poison. On the morning of the 6th he was found dead, and I was telegraphed for to hold a post-mortem. I examined again, as I had done before death, for some wound or mark of violence, but failed to find any. Almost as soon as death took place rigor mortis set in, and this remained for a number of hours after. I removed the limb on the off forward side, he having fallen on the near side; finding the blood vessels of the skin and bronchial region very much congested, the blood being very dark and thick in character; the same condition in the right lung of a more marked type, while the left lung was thoroughly engorged, partly from gravitation. Upon entering the abdominal cavity I found the immediate cause of death to have been from rupture of the colon at the supra-sternal flexure, which probably occurred during one of the spasms. The stomach proved to be empty, with the exception of a few dead bots, the lining membrane showing but one or two ulcerated patches. The first eight or ten feet of the small intestine was a deep red color from inflammation, and its mucous membrane showed many large patches of ulceration. I did not go into the brain or spinal cord, feeling that it was unnecessary, where the lesions corresponded so well with my diagnosis of poisoning by strychnia.

USE OF THE TROCAR AND CANULA IN TYMPANITIS OF THE HORSE.

BY W. F. DERR, V.S., (Wooster, Ohio).

In the last fifteen months I have used the trocar a great deal and with good success, and thinking it might be of some benefit to some of the readers of the *VETERINARY REVIEW*, I will report a few cases.

On the 10th of May, 1880, I was called to see a grey horse twelve years old, the property of S. S. Shillings, proprietor of the Wooster Cab Line. The animal had been suffering for about an hour by the time I arrived at the stable. The animal was down and in terrible agony, abdomen distended with gas to its utmost capacity; respiration accelerated and very laborious; pulse feeble and indistinct; body cold and clammy, and ears and legs in a similar condition. Eructations of gas from the stomach by the way of the mouth, indicated that the stomach as well as the intestines were occupied with gases.

I got the animal on his feet, and administered a drench of turpentine 1 oz., with am. carb. 2 drs., in a pint of linseed oil; gave an injection of warm water, but did not succeed in getting him to expel any feces or gases, as he expelled the injection as soon as we administered it, on account of the great distention of gasses in the intestines. In about fifteen minutes I tried to administer another drench, but he threw it back by the way of the nostrils.

I now made up my mind to try the effect of the trocar and canula. I introduced the instrument about an equal distance from the anterior spine of the ilium and transverse process of the lumbar vertebra and ribs on the right side. On withdrawing the trocar the gas escaped freely, giving instant relief. Thinking I now had the case under control, I gave a small dose of aloes, as I had given him oil before, combined with a carminative to rouse up the digestive organs; the horse appearing easy, I left for about an hour, to attend to another patient, but on my return found the animal in a worse condition than before; the owner had inserted a handful of salt in the rectum, thinking it might expel the gases

which had again accumulated. The rectum was inverted to the extent of about five inches, and the animal straining all the time to expel the gasses, and also on account of the irritation the salt produced, it was impossible to keep the animal on his feet even long enough to pass the trocar, so I introduced it while he was lying down, about an inch below the first puncture. I got immediate relief. I now gave a drench of hyposulph. of soda, which had the effect of neutralizing the gasses so as to give no further trouble, the animal going to his usual work in a few days without the least trouble from the punctures that were made.

Case 2. Bay mare about six years old; property of J. A. Thomas, Wooster, was admitted into the infirmary for acute indigestion, with symptoms similar to the case just related. Punctured her three different times on the right flank with good success. This animal had a small abscess form in a week after the operation, which I opened and used a carbolic wash, but was not taken off work during the treatment of abscess, doing light work about town. She made a good recovery.

Case 3. Bay colt, two years old, property of Mr. Ross, farmer, had an attack of indigestion, due to an over-feed of oats on the night of April 25th. I was asked to prescribe for the case, but not to see it. Prescribed a dose of turpentine and am. carb. On the morning of 26th, he was brought to the infirmary in the following condition: A debilitated animal, with a pulse of about a hundred, weak and indistinct, pupils dilated, abdomen greatly distended, breathing laborious, ears drooping, inversion of the rectum; in fact he looked to be in a dying condition. The first thing I did was to give relief with the trocar by two punctures in the right flank. From the first puncture I got no gas; gave stimulants; had him rubbed down well and blanketed, and he began to improve for about an hour, when the gasses again began to accumulate. I tried various kinds of remedies, but failed to get the desired effect, so I again resorted to puncturing, with the desired effect. He gradually began to improve, and had no further trouble except a small abscess, which I treated the same as case No. 2; he made a good recovery.

Case 4. One of my own driving horses, seventeen years old, which I have driven eight years without ever being sick presented

symptoms of colic on the evening of May 16th. After giving a colic drench she seemed relieved, so that I paid no more attention to her, but left her for the night. About two o'clock I was aroused by the man sleeping in the barn saying the mare was bad. I got there as soon as I could, and don't think I ever saw a case in the condition she was. The abdomen was distended to its utmost capacity, the walls of the abdomen were rigid as a plank, and respiration in consequence of the great pressure on the diaphragm and lungs were very laborious, amounting to almost a hundred a minute; pulse indistinct, eyes glassy and protruding, a cold, clammy perspiration all over the body, pupils so dilated that the mare would run against the walls like a blind horse. Her agony was so intense that I did not try to administer any medicine, but at once plunged the trocar into the right flank; the gas escaped very freely, and had the effect of giving immediate relief; gave a drench of hyposulph. soda and a stimulant, with a purgative, which had the effect of neutralizing the gasses so as to cause no further trouble. This mare made a good recovery, and was in harness four days afterward.

In conclusion, I would say in my opinion, puncturing the intestines of horses is safe if performed early, while there is plenty of vitality left in the animal. In a great many cases that are punctured the practitioner waits to do it as a last resort, and the animal dies, and he condemns the operation, when in all probability the animal would have died without the puncture. I think if we are going to have success in cases of this kind the operation must be performed early, and not as a last resort.

INJURY TO A MARE FROM COVERING.

By N. S. TOWNSHEND, M.D., (Columbus, Ohio).

A five year old mare, of good height but short quarters and light of body and limb, was in June last served by a large Percheron stallion. After the covering the mare strained considerably, and made frequent attempts at micturition. In a day or two the vulva became much swollen, and a discharge of bloody mucus

was observed from the vagina. For nearly a week the mare was feverish and gave evidence of pain when compelled to move. During this time she received no medical attention. When seen by your correspondent she manifested intense suffering; the pulse was 96 a minute and weak, the respiration rapid, the abdomen was somewhat distended by fluid; she was evidently sinking, and died in two or three hours. A careful post-mortem brought to view a vagina small and short, intensely inflamed, but nowhere ruptured. Inflammation had extended by the urethra to the bladder, from the vagina to the uterus, and from the latter to the peritoneum generally. Peritonitis had terminated in effusion, so that several gallons of water were found in the abdominal cavity.

EDITORIAL.

UNITED STATES VETERINARY MEDICAL ASSOCIATION ANNIVERSARY MEETING.

The nineteenth meeting of the United States Veterinary Medical Association, appointed for September 20th, took place as announced and after a session of several hours duration, adjourned. The State of New York was represented by quite a large number of members. Massachusetts had two representatives, and Connecticut and New Jersey one each, making a total of about twenty-five. The Association however, has members residing in Pennsylvania, Rhode Island, Maine, Ohio, Illinois, Nebraska, Texas and Colorado. Massachusetts furnishes some ten or twelve members, and New Jersey counts five or six. It thus appears that while some sixty-five representatives of the profession can claim membership in the Association, but twenty-five were present, and of these four only belonged to States outside of New York.

The day was passed almost entirely in the discussion of articles of the by-laws, and with the exception of a meagre report from one of the committees, and the reading of a few remarks upon the

Nova Scotia cattle diseases, nothing, absolutely nothing, was done worthy of the Association—the only body of its kind existing in the United States.

Why is this so? Why is it that the Association, meeting but twice a year, but for which the anniversary meeting takes place in September; why is it that such poor result is obtained? If we look at the work which other similar associations do, at similar meetings, what must be our feelings—and what can be said of the Association by those who are its enemies, or by those who are interested in the doings of all veterinary societies? It is not because the Association is deficient in men capable of doing good work. It is not that all of the members are not anxious for its welfare. Then where is the cause of this failure in the success of the meeting?

After giving careful thought to the subject, we are brought to the conclusion that the fault lies principally with its officers. Not on any one especially, but on all. The various committees alone ought to furnish a sufficient amount of interesting material for discussion and for instruction. But what is done? They are appointed by the President, and possibly that is all that comes of it. Perhaps the Secretary notifies them of their appointment, but what more? Are they ever reminded of such appointment? Are they notified that a report will be expected from them, either separately or collectively, through their Chairman? We know of cases where the Chairman of a committee overlooked his position and never thought that he had to make a report, until the very evening before the day of meeting. Cannot the Committee on Disease collect sufficient material all over the country for an excellent report on the general condition of health and disease among our domestic animals? If the members of that committee are appointed, say one in Massachusetts, one in Pennsylvania, and one in Ohio, can they not gather the elements of a report which will be attentively listened to for several hours? And the committee on Intelligence and Education—is not their field of labor and investigation sufficiently wide to furnish materials for an excellent report? And the Committee on Prizes, is it not their duty to endeavor to stimulate the ambition of all, and obtain some original

articles for competition? And, * * And, * * But let us not find fault with the officers, but rather let us also ask every member in particular, if he has done his whole duty towards the Association.

It is not the desire of finding fault which impels us to offer these remarks, nor is it with any other desire than to see the Association assuming, in the United States, the position which it may justly claim. We feel that the United States Veterinary Medical Association is one day to become the veterinary body *par excellence* of the profession in the United States, and it is this conviction which sustains us in declaring to its members what we think to be the truth, however unpalatable it may be—truth that we are willing to confess may also apply to ourselves. And if we have felt justified in thus addressing our associates, it is with the hope that efforts will be made in the proper direction to reform the old methods of holding our meetings, and that in the future they will be made worthy of the members and worthy of the noble profession to which they belong. In the selection of a new President the Association has secured the services of a good man and worker, and one whom we hope will appreciate the importance of his position and the good he can do to the profession, by urging his constituents to fill up the measure of their duties as well as to avoid the wrong which may follow any neglect or forgetfulness of the obligations he has assumed.

AMERICAN VETERINARY COLLEGE—WINTER SESSION, 1881-'82.

The regular winter session for 1881-'82 of the above institution will commence on October 3d. Dr. N. J. Roberts will deliver the opening address.

ARMY VETERINARY MEDICINE.

ITS HISTORY ; THE PRESENT CONDITION OF THE ARMY VETERINARY SURGEON ; HIS RIGHTS AS A REPRESENTATIVE OF A SCIENTIFIC PROFESSION AND WHAT IS REQUIRED BY THE GOVERNMENT TO ESTABLISH AN EFFICIENT VETERINARY DEPARTMENT.

BY A. A. HOLCOMBE, D.V.S., Veterinary Inspector U. S. A.

To the President and members of the United States Veterinary Medical Association.

GENTLEMEN :—I have the honor to submit to you, the representatives of the veterinary profession in America, in behalf of myself and army colleagues, a statement which I trust will appeal to your sense of justice and secure for us your most able influence in effecting such changes in the Army Veterinary Department as shall prove conducive to the interests of the government and of veterinary science.

HISTORY.

The history of veterinary medicine in the U. S. Army is one that, fortunately, cannot be written in full, owing to the scarcity of data on the subject ; but that it is replete with the barbarous practice of ignorant empirics needs no confirmation beyond the silent testimony offered by the many remaining victims of unnumbered vivisections. They are present, living monuments to the ingratitude of a nation that exacts from the brute a full complement of labor without vouchsafing in return that care for its physical welfare which is due to the one and advantageous to the other.

Prior to the breaking out of the late civil war in 1861 there were but few mounted soldiery in the army, and in the organization table no reference is made to the veterinary surgeon, and it seems that no provision was made for the care and treatment of sick animals in government service. According to the testimony of old soldiers who served in the Dragoons, it fell to the lot of the shoeing-smith or farrier not only to adjust the shoes, but to attend also the sick and disabled and to superintend the

administration of such remedies as could be had upon the prescription of any and all who would presume on making a suggestion. Usually the treatment was determined not so much by the nature of the complaint as by the drug that happened to be nearest at hand.

The first recorded reference I can find to the position of army veterinary surgeon is in General Order No. 16, dated May 4th, 1861, from the War Department, where, in giving the organization of "One additional regiment of cavalry," under Par. 2, one veterinary sergeant is named in connection with the other sergeants. Par. 3 of the same order says: "The veterinary sergeant shall receive the pay and allowances of sergeants of cavalry." According to Par. 1388 of the Revised Army Regulations of 1863, the veterinary sergeant received \$17 pay per month, while the allowances consisted of rations, fuel, a mount and forage.

But a change was soon made in this regard, for in General Order No. 73 of 1863, the Act of Congress relating to the Army Establishment is published, in Par. 6, Sec. 37, of which appears the following: "And each regiment (cavalry) shall have one veterinary surgeon, with the rank of a regimental sergeant-major, whose compensation shall be \$75 per month." As will be observed the title "sergeant" was dropped and "surgeon" substituted. By whom the appointments were made, or what constituted the necessary qualifications no mention is made, so the inference is that the whole matter was placed at the discretion of the commanding officers of the various cavalry regiments. That the government officials appreciated the grave defects of the adopted system of caring for the public animals is seen by the Quartermaster General's Order No. 21 of 1863, in which he says: "It is not too much to say that the government has already been obliged to replace many thousands of horses and mules which, with proper understanding of, and attention to, their duties on the part of the Quartermasters, would have been at this moment in serviceable condition. * * * Neglect and imbecility on the part of those in charge ruin them and tax the treasury." This was strong language indeed, but I doubt if the Quartermaster General appreciated fully what was needed to effect the de-

sired reform. A few educated veterinarians in the army at this time could have done more for the advancement of the profession, and the appreciation of its importance by the Government, than by a lifetime in civil practice. But the opportunity passed unnoticed. A few months later in 1863, a change regarding the veterinary surgeon was effected, for, in General Order No. 259 I find: "Veterinary surgeons of cavalry under the Act of March 3d, 1863, will be selected by the Chief of the Cavalry Bureau upon the nomination of the regimental commanders.

"These nominations will be founded upon the recommendation of the candidate by a regimental board of officers to consist of the three officers present next in rank to the commander of the regiment.

"The names of the candidates so recommended and nominated to the Chief of the Bureau of Cavalry, will be submitted by him to the Secretary of War for appointment. A record of the appointments so made shall be kept in the Adjutant General's office."

This was an important move in so far as the veterinary surgeon was concerned, for it served to give him a status in the army, and a compensation somewhat commensurate in the importance of the services rendered. It was the first time the Government had offered inducements which might possibly tempt an educated veterinarian to accept an army position. The next order having any important relation with the veterinary surgeon was issued in 1864, when provision was made for supplying the army with "horse medicines." It would be interesting to know who comprised the board that recommended the medicines found in the following:

"Gen. Order No. 195" (dated May 12th, 1864). "The subjoined standard supply table of horse medicines, with regulations for the government of the Veterinary Department of the Army, prepared by a board of officers convened by Special Order No. 137, current series, from this office, (Adjutant General's), have been adopted, and are published for the information and guidance of all concerned.

"I. STANDARD SUPPLY TABLE.

(Articles and quantities for 100 horses for three months, Hospital Service only are given, as the whole table would occupy

too much space—*Auth*). “Aloes, 2 ozs.; alcohol, $\frac{1}{2}$ gal.; asafoetida, $\frac{1}{2}$ lb.; alum, 2 lbs.; blister liquid, 1 qt.; blue stone, 1 lb.; borax, 3 lbs.; calomel, $\frac{1}{4}$ lb.; castile soap, 20 lbs.; ground flaxseed, 16 lbs.; hartshorn, $\frac{1}{2}$ gal.; lunar caustic, $\frac{1}{2}$ oz.; laudanum, 2 qts.; simple cerate, 5 lbs.; mercurial ointment, 1 lb.; Mustang liniment, 4 bots; olive oil, 1 gal.; oil, linsced, 1 gal.; oil, turpentine, $\frac{1}{2}$ gal.; Powell’s liniment, 4 bots; resin, 1 lb.; salts, 4 lbs.; sulphur, $\frac{1}{2}$ lb.; saltpetre, 2 lbs.; sweet spirits of nitre, 1 qt.; sugar lead, 2 lbs.; tar, $\frac{1}{2}$ gal.; tartar emetic, $\frac{1}{2}$ lb.

“ DRESSINGS.

Adhesive plaster, 2 yds; muslin (coarse), 20 yds.; red flannel (coarse), 4 yds.; sponge, $1\frac{1}{2}$ lbs.; silk for ligature, $\frac{1}{2}$ oz.

“ I.—INSTRUMENTS.

“Abscess knife (2 blade), 2; ball forceps, 2; corkscrews, 2; funnels, 2; graduate glasses, 2; mortar and pestles (iron), 2; needles, 1 doz.; probes, 2; rowling necdles, 2; scales and weights, 2; syringes, 2; spring lancets, 2; straight scissors, 2; spatulas, 2; trocars, 2; tenaculums, 2.

“ II.—REGULATIONS FOR THE VETERINARY DEPARTMENT.

“1. The standard of horse medicine for the army in the field, and in hospitals, is the supply table.

“This table will not be deviated from except in extreme emergencies, and then only for hospital use, when the reasons must be clearly and satisfactorily stated.

“2. Requisitions will be made quarterly, and in duplicate, conforming strictly to the standard supply table.

“3. Quartermasters will hold veterinary surgeons strictly responsible for the instruments issued to them, and, in case of loss through carelessness or damage from neglect, the cost price of the instruments so lost or damaged will be charged to them.

“4. Quartermasters responsible for medicines and dressings will take care that these articles are used for their legitimate purposes, and will hold the veterinary surgeons strictly accountable for their loss or damage through neglect, etc.”

During the next two years immediately following the publica-

tion of this table no change of any importance was made regarding the Veterinary Department; but in 1866 the following was enacted by Congress: "An act to increase and fix the military peace establishment of the U. S. Army," approved July 28, 1866, and published in General Order No. 56, Adjutant General's Office, of the same year. "Sec. 3. Four regiments of cavalry shall be added to the six already existing (two of which are to be colored), and to have the same organization as is now provided by law for cavalry regiments, with the addition of one veterinary surgeon to each regiment, whose compensation shall be \$100 per month."

This law, as will be seen, gave these four regiments two veterinary surgeons apiece, so that in the division of the various companies to different posts one surgeon remains at headquarters while the other is assigned to the battalion of next importance. Seniority of rank of the veterinary surgeons serving in these regiments is determined by the dates of their warrants from the Secretary of War.

In 1868 the Government takes steps toward securing reliable medicines for the use of the Veterinary Department, for General Order No. 4 of that year says: "To insure a greater degree of purity and excellence of medicines and articles required for the veterinary service of the army, the Secretary of War directs that the Quartermaster's Department hereafter purchase such supplies from the Medical Department.

"In special cases, where such medicines as are not furnished by the present supply table are required, the Quartermaster's Department is authorized to issue the same in small quantities upon requisitions approved by the post commander."

At a later date in this year appeared an order which will speak for itself—General Order No. 73, August 21, 1868: "The following order has been received from the War Department, and is published for the information of all concerned: 'Mr. Alexander Dunbar, V. S., has been employed by the War Department to give instruction to the farriers, veterinary surgeons and officers of the army under the following joint resolution of Congress, approved July 28, 1866: "That the Secretary of War be authorized and directed to contract, on such terms as he may

think fair and reasonable, with Dr. Alexander Dunbar for the use by the Government of the alleged discovery of the said Dunbar of a mode of treatment of the diseases of the horse's foot, and for his services for one year in instructing the farriers of the army in such treatment, the amount agreed upon to be paid out of the fund already appropriated for the purchase of horses or general support of the army.

"He will be ordered to give clinical lectures upon his system, first at Washington City, and will in the course of the year of his engagement be ordered to the principal military posts at which large numbers of horses and mules are kept.

"He will be obeyed and respected accordingly."

Had Congress known anything of veterinary surgery as a science, it is safe to say no such imposition could have been practiced on its credulity by one devoid of the simplest knowledge of surgery and the diseases of the feet of the horse.

No further change in the Veterinary Department or its interests occurred until 1873, when the following appeared in General Order No. 84, dated August 20 :

"I. Hereafter the Quartermaster's Department will furnish the authorized horse medicines and instruments for the mounted artillery, as well as for the other horses of the army; and such medicines and instruments as are now on hand in charge of the Ordnance Department will be turned over to such officer or officers as the Quartermaster General may designate to receive them."

General Order No. 93, dated November 11, 1875, contained further information in this regard: "The allowance of horse medicines and dressings * * * will be issued quarterly to the company commanders of light artillery and cavalry.

"The number of animals for which the articles are required will be stated in the requisition. Issues will in no case be made in excess of the allowance, etc." * * * * *

"Veterinary instruments will be issued and accounted for as heretofore."

In conjunction with this order was published the blank form of "Abstract of Horse Medicines and Dressings Issued," and a blank form of "Requisitions for Horse Medicines and Dressings."

In 1876 (General Order No. 31, dated April 12,) the supply table, with its various revisions and the orders pertaining thereto, issued subsequent to its first publication in 1864, was published "for the information and guidance of all concerned."

The next order pertaining to the Veterinary Department was published May 31, 1877 (General Order No. 52). Its contents were as follows: "By direction of the Secretary of War, General Order No. 259 of August 1, 1863, from the War Department, is revoked and the following substituted: Veterinary surgeons of cavalry regiments authorized by Section 1102, Revised Statutes, amended by the Act of February 27, 1877, will be appointed by the Secretary of War upon the nomination of the regimental Board of Officers, to consist of the three officers present next in rank to the commander of the regiment.

"The nominations of candidates so recommended, accompanied by the report of the Board in each case, will be transmitted by the regimental commander to the Adjutant General of the Army."

It will be observed that in no instance has any reference been made to the necessary qualifications of the candidate for army veterinary honors.

Under the order last quoted above, anyone might present himself to the Board for examination. There were no regulations for determining the extent and scope of the examinations, nor was the Board required to report to the Secretary of War the nature of their investigations into the candidate's knowledge of veterinary surgery or other subjects. Unfortunately, as it seems to me, the order of May 31st, 1877, as well as Order 259 of 1863, was so constructed as to exclude from the Board of Examiners, probably in the majority of instances, the very officers fully qualified to determine the applicant's knowledge of at least the general principles of surgery. I refer to the surgeons. Considering then that the Examining Boards were generally composed of officers who, unless in exceptional instances, had little or no knowledge of veterinary surgery beyond the simpler manipulations, it is not a matter for surprise that the qualifications of the individuals employed by the government in the capacity of Veter-

inary Surgeons up to this time, were of the most nondescript order. During the period these orders were in force the positions were awarded, as a rule, to shoeing-smiths, farriers, or peripatetic quacks, who had imbibed empirical ideas of the most radical sort regarding the efficacy of certain remedial agents in the treatment of disease, and of the value of their own very limited knowledge. Generally, and with but a few honorable exceptions, these individuals were as guiltless of an acquaintance with the simplest rudiments of veterinary medicine as a science, as they were of the English language, the usages of genteel society, or the real responsibilities of the positions they tried to fill. As a matter of course, the value of veterinary medicine to the Army was very generally inferred from the nature of the service rendered by these men, and the veterinary profession, as a whole, was measured accordingly by this false standard. I have seen letters of recommendation, held by these individuals, from officers high in rank, which described the possessors as "veterinary surgeons of great merit." As well might they have been called "eminent military scientists."

But, notwithstanding the adverse circumstances with which army veterinary surgery was surrounded and hampered in its growth, a few zealous workers held fast to their faith that it would some day receive a proper recognition, and in 1879 had their hopes and work in part awarded by the appearance of the following :

"GENERAL ORDERS No. 36.

"Headquarters of the Army, Adjutant-General's Office, }
"WASHINGTON, March 27, 1879. }

"I. The report of the Board of Officers appointed by paragraph 12, Special Orders No. 183, from this office, dated August 24, 1878 (organization modified by par. 7, Special Orders No. 211, from this office, dated October 1, 1878), 'To prepare and recommend a standard supply-table of veterinary medicines and instruments for use in the Army,' having been approved by the Secretary of War, and its recommendations adopted, it is, by his direction, hereby published for the information of the Army and for the guidance of all concerned, and will take effect from July 1st, 1879.

“Requisitions and estimates for veterinary supplies will hereafter be made in conformity with the allowances provided for in the Standard Supply Table, contained in the report of the Board.

“JEFFERSON BARRACKS, Mo., Nov. 15, 1878.

“The Board of Officers convened at Jefferson Barracks, Mo., by virtue of paragraph 12, Special Orders No. 183, Headquarters of the Army, Adjutant-General's Office, dated August 24, 1878, and paragraph 7, Special Orders No. 211, Headquarters of the Army, Adjutant-General's Office, dated October 1, 1878, has the honor to submit the following report on the subject of ‘A Standard Supply-Table of Veterinary Medicines and Instruments for Use in the Army.’”

“STANDARD SUPPLY TABLE.”

[The table covers too much paper to be given in full; therefore, each article is named, and the quantity for 100 horses, hospital service, for a period of three months is given.—*Author.*)]

“*Medicines.*—Acid arsenious (arsenic), 2 oz.; acid carbohc, crystallized, 14 oz.; acid carbohc, for disinfection, 2 lbs.; acid muriatic, 16 oz.; acid nitric, 8 oz.; acid salicylic, 3 lbs.; acid tannic, 14 lbs.; aconite, tincture of, 1 lb.; alcohol, 4 gals.; aloes, 20 oz.; alum, 2 lbs.; ammonia, acetate of, 2 lbs.; ammonia, arom. spts. of, 2 lbs.; ammonia, solution of, 3 gals.; ammonia, carbonate of, 4 lbs.; antimony and potassa, tartrate of, 2 oz.; atropia, sulphate of, $\frac{1}{8}$ oz.; belladonna, alcoholic ext. of, 4 oz.; blistering liquid, 2 qts.; borax, 2 lbs.; camphor, 3 lbs.; catechu, 1 lb.; castor oil, 2 gals.; chalk, prepared, 2 lbs.; chloroform, purified, 3 lbs.; cinchona bark, powd., 2 lbs.; cinchona, fluid ext. of, 4 lbs.; colchicum seed, $\frac{1}{2}$ lb.; collodion, $\frac{1}{2}$ lb.; copper, sulph. of, 4 oz.; cosmoline, veterinary, 15 lbs.; ether, sulphuric, 4 lbs.; ether, spirit of nitrous, 2 qts.; flaxseed meal, 40 lbs.; ginger, powd., 3 lbs.; iodine, 3 oz.; iron, sulph. of, $\frac{1}{2}$ lb.; iron, tinct. of the chloride of, 2 lbs.; jalap, $\frac{3}{4}$ lb.; lead, acetate of, 2 lbs.; linseed oil, 2 gals.; magnesia, sulph. of, 24 lbs.; mercurial ointment, 2 lbs.; mercury, biniodide of, 2 oz.; mercury, corrosive chloride of, 2 oz.; mercury, mild chloride of, 2 lbs.; morphia,

sulph. of. 1 oz.; nux vomica, alcoholic ext. of, 4 oz.; olive oil, 2 gals.; opium, powd., 1 lb.; opium, tinct. of, 3 qts.; pepper, Cayenne, ground, 1 lb.; potassa, chlorate of, 2 lbs.; potassa, nitrate of, 4 lbs.; potassium, iodide of, 3 lbs.; quinia, sulph. of, 6 oz.; rhubarb, powd., $\frac{1}{2}$ lb.; rosin, 4 $\frac{1}{2}$ lbs.; silver, nitrate of, crystals, 1 oz.; silver, nitrate of fused, 1 oz.; soap, Castile, 30 lbs.; soda, bicarbonate of, 4 lbs.; soda, hypophospite of, 1 lb.; sulphur, washed, 2 lbs.; sulphur in rolls, 2 lbs.; turpentine, oil of, 2 gals.; zine, chloride of, $\frac{1}{4}$ lb.; zine, sulphate of, $\frac{1}{4}$ lb.

Dressings.—Bandages, 4 inch, 48; catgut, carbolized, for ligatures, 8 yds.; flannel, red, coarse, 8 yds.; lint, patent, 4 lbs.; oakum, 35 lbs.; pencils, hair, 1 doz.; silk ligature, 1 oz., sponges, coarse and fine, each, 2 lbs.; ticking, (muslin, twilled), 8 yds.; tubing, rubber $\frac{1}{4}$ -inch, 3 yds.

Instruments.—Bone-saw, small, 1; Catheters, gum, with stylet, 2; cork-screws, 2; dissecting case, 1; drenching horn, gutta-percha, 2; firing irons, point and line, each 1; funnels, rubber, 2; funnels, tin, 2; foot instruments, a set; graduate glasses, glass, 6-oz., 1; graduate glasses, glass minim, 1; Hobbles casting, 1; hones, 1; measures, tin, set, 1; needles, surgeons', 24; needles, for wire sutures, 12; panniers, to be filled from stock on hand, similar in make to those of the Medical Department, 1; pill-tiles, 1; pocket-case (see list), 1; *post-mortem* case, 1; probangs, 2, pieces of whalebone, 1; saddle-bags, physicians', for small detachments, to be filled from stock on hand, (not used in hospital service); scales and weights, prescription, 1; scales and weights, shop, 1; scissors, curved, 1; scissors, straight, 1; slings, suspending, 1; spatulas, 2; speculum, mouth, 1; syringes, hypodermic, 1; syringes, rubber, 2-oz., 1; syringes, rubber, 5 oz., 1; syringes, rubber, 16 oz., 1; thermometer, clinical, 1; tooth-chisel, 1; tooth-forceps, large, 1; tooth-forceps, small, 1; tooth-rasps, 1; tracheotomy-tube, self-retaining, 1; trephine, 1; urinometer, 1; blank-books, half-bound, 4 quires, 1; memorandum-book, 1; ink, black, 2-oz. bottles, 2; paper, filtering, round, 10-inch, 2 pkgs.; paper, litmus, blue and red, each, 1 sheet; paper, writing, cap, 2 quires; paper, writing, note, 2 quires; paper, writing, note, 2 quires; pencils, lead, 6; pens, steel, 24; penholders, 3, bone forceps, 1.

Books.—The Farmer's Veterinary Adviser, Law's, 1 ; ; Pharmacy, Parrish's, 1.

Contents of Pocket-Case.—1 three-bladed fleam ; 1 scissors, flat ; 1 scissors, curved ; 1 artery forceps ; 1 long-shanked, probe-pointed bistoury ; 1 trocar ; 1 finger-knife ; 1 seton-needle, closing in handle ; 1 frog-seton-needle, in two parts ; 1 seton-needle, in three parts ; 1 scalpel ; 1 director ; 1 retractor ; 1 straight bistoury ; 1 dressing forceps ; 1 porte caustic ; 1 tenotomy knife ; 1 tenaculum ; 6 assorted drawing-knives ; 3 lancets ; 16 needles, straight ; 6 needles, half-curved ; 1 needle-holder (Russian) ; 2 oz. saddlers' silk ; 1 oz. silver suture wire, No. 26 (about 18 yds. 1 ft. 10 in.)."

"Only the articles and the quantities thereof that are actually needed to be placed upon the requisition."

This table is believed to be usually ample and sufficiently varied for ordinary practice, but in order to provide for the necessities of epidemics and to indulge, as far as practicable, individual preference and training, a special requisition of articles not on the Supply Table, with an explanation of the nature of the emergency or case rendering it necessary, may be forwarded to the Quartermaster-General for his action. Veterinary medical supplies and instruments for hospital use to remain in the hands of the Post Quartermaster, to be issued from time to time and in such quantities as are needed by the companies. The instruments to remain in the custody of the Post Quartermaster. Post Quartermasters to take up all instruments and veterinary medical supplies, and report, when possible, to whose account they are to be credited.

A Veterinary Surgeon is to visit all the companies of the regiments to which they belong from time to time, to instruct the farriers and enlisted men in the proper and humane care of the horse, in order to the prevention of and treatment of diseases, especially to teach the anatomy and pathology of the foot. He should illustrate his instructions by dissections and specimens, to show the nature and uses of all parts of the horse's foot ; and he should also teach the principles and practice of horse-shoeing. It would be economy to have a Veterinary Surgeon at every post

where there are a considerable number of public animals, say four companies of cavalry, or the same number of other public animals.

A room for the safe storage of veterinary instruments and medical stores and the compounding of medicines should be provided, and the Veterinary Surgeons and Farriers should be encouraged to make and preserve collections of specimens obtained from *post mortem* examinations, illustrating the anatomy and pathology of the horse in order to popularize and disseminate a knowledge of those important subjects in the Army.

(To be continued.)

SANITARY LEGISLATION.

FRENCH LAW UPON THE SANITARY POLICE FOR ANIMALS.

(Continued from page 245.)

CHAPTER II.

INDEMNITIES.

SEC. 17. Owners of animals destroyed on account of typhus, by virtue of Section 7, shall receive an indemnity equal to three-quarters of the value of the animal before the disease.

Owners of diseased animals, destroyed for the cause of contagious pleuro-pneumonia, or that have died from the inoculation, by virtue of Section 9, will receive an indemnity regulated as follows :

Half of the value before the disease; if they are recognized as affected by it;

Three-quarters, if they have only been contaminated;

The total value if they have died from the inoculation of contagious pleuro-pneumonia.

This indemnity allowed cannot exceed 400 francs for half of the value; 600 francs for the three-quarters; and 800 francs for the whole value.

§ 18. No allowance will be granted to owners of animals imported from foreign countries, destroyed because of contagious pleuro-pneumonia within three months following their landing in France.

§ 19. When the remains of an animal destroyed because of bovine pest, or of contagious pleuro-pneumonia, has been authorized for use by consumption, or any industrial purpose, the owner is required to report the produce of the sale of such remains.

This produce belongs to the owner; if it exceeds the portion of the value left to his charge, the indemnity due him will be reduced a corresponding amount.

§ 20. Before the execution of the order to destroy, the valuation of the animals by the official veterinarian and an expert named by the owner, shall take place.

If the owner fails to name an expert, the official veterinarian shall act alone.

A report shall be made by the experts, the Mayor and Justice of Peace also signing and reporting their opinion of the case.

§ 21. The claim for indemnity must be made to the Minister of Agriculture and Commerce, within three months from the date of slaughter, under penalty of forfeiture.

The Minister may order a revision of the valuation made by virtue of Section 20, by a commission to be designated by him.

The indemnity fixed by the Minister shall be final, unless appealed before the Council of State.

§ 22. Violations of the provisions of the present law, or regulations adopted for its execution, will be followed by forfeiture of the indemnity prescribed in Section 17.

The decisions of the Minister shall be final unless appealed before the Council of State.

§ 23. No indemnity will be allowed to owners of animals destroyed for contagious diseases other than bovine-typhus and contagious pleuro-pneumonia, under the special provisions contained in Section 9.

CHAPTER III.

IMPORTATION AND EXPORTATION OF ANIMALS.

§ 24. Animals of the equine, asinine, bovine, ovine, caprine and porcine species are at all times subject to inspection at the expense of the importers, at the time of their entrance into France, either by land or by water.

The same measure may be applied to animals of other species,

where, as sequence of their importation, the introduction of a contagious disease is to be feared.

§ 25. The bureaux of customs and imports, open to the importation of animals exposed for sale, are named by decrees.

§ 26. The Government may prohibit the admission into France or order the quarantine of animals capable of communicating contagious disease, or of all objects presenting the same danger.

It may order the destruction at the frontier, without indemnity, of diseased animals, or of such as have been exposed to contagion; and may generally adopt any measures which fear of the invasion of a disease may render necessary.

§ 27. The sanitary measures, to be taken at the frontier, are ordered by the Mayors of the rural communes, by the Commissaries of Police in the frontier railroad depots, and in the sea-ports, according to advice from the official veterinarian in charge of the district.

In the absence of the action of these authorities, the officers of customs may be called upon for assistance.

§ 28. The municipalities of sea-ports, open to the importation of cattle, shall furnish special quarters for unloading, with all necessary facilities; as well as a building to receive the animals placed in quarantine for sanitary reasons, which must have been accepted by the Minister of Agriculture and Commerce.

§ 29. The Government is authorized to take the necessary measures to prevent the exportation of animals affected with contagious diseases.

CHAPTER IV.

PENALTIES.

§ 30. Infractions of the provisions of Sections 3, 5, 6, 9, 10, 11, paragraphs 2 and 12, of the present law, shall be punished by imprisonment from six days to two months, and a fine of from 16 to 400 francs.

§ 31. The following offenders shall be subject to from two to six months' imprisonment and fines of from 100 to 1,000 francs:

1st—Those who in spite of the measures of the administration shall have allowed their infected animals to communicate with others;

2d—Those who have sold or exposed for sale animals known to be affected or suspected of contagious disease ;

3d—Those who, without permit from the authorities, have left unburied or have knowingly bought cadavers or remains of animals of any description which have died of contagious diseases, or which have been killed because of their having been affected with bovine typhus, anthrax, glanders, farcy or hydrophobia.

4th—Those who, even before the decree of interdiction, shall have imported into France animals known by them to be affected with contagious diseases, or which had been exposed to contagion.

§ 32. The following persons shall be subject to imprisonment for from six months to three years, and a fine of from 100 to 2,000 francs :

1st—Those who shall have sold or exposed for sale the flesh of animals known by them to have died of contagious disease, of whatever nature ; or which had been destroyed as affected with bovine typhus, anthrax, glanders, farcy or hydrophobia ;

2d—Those who shall have been guilty of the offences referred to in the preceding sections, if from that cause a contagion has spread amongst other animals.

§ 33. Contractors of transports, who shall have neglected the duty of disinfecting their material shall be subject to a fine of from 100 to 1,000 francs, and shall be punished by imprisonment from six days to two months, if from this neglect a contagion has spread amongst other animals.

§ 34. Violations of the present law, not specified in the above sections, shall be punishable by fine of from 16 to 400 francs.

Violations of the regulations of the departments of public administration, designed to facilitate the execution of the present law, shall, according to the degree of the offence, be subject to a fine of 1 to 200 francs, to be imposed by the District Magistrate at his discretion.

§ 35. In cases of conviction for violation of any of the provisions of the present law by the official veterinarian or any other person holding any official position whatever under its authority, the punishment shall be double the maximum penalty imposed upon unofficial persons.

§ 36. Section 463 of the Penal Code is applicable to all the cases arising under the various Sections of the present Chapter.

CHAPTER V.

GENERAL PROVISIONS.

§ 37. The expenses of slaughtering, burying, transport, quarantine and disinfection, as well as all other expenses arising under the execution of the present law, shall be charged to the owners of animals, or persons having them in charge.

In case of their refusal to obey the injunctions of the administrative authority, it will be charged against their official accounts.

The expenses of these operations shall be certified in an order by the Mayor, the collection and execution to be assigned to the Sub Prefect. Persons resisting their enforcement shall be proceeded against before a Justice of the Peace.

The disinfection of railroads, trucks, &c., prescribed by section 16, is left in charge of the company ; expenses of disinfection are fixed by the Minister of Public Works, after conference with the companies.

§ 38. A service of epizootics is established in each department, in order to secure the execution of the present law.

Expenses of this service * * * *

§ 39. Communes where fairs and markets are held, shall be required to have a veterinarian appointed for the sanitary inspection of animals brought there. They may repay themselves by special taxes on the animals.

This is obligatory. * * * *

§ 40. The regulation of the public administration, for the execution of the present law, necessitates the organization of consulting county committees on epizootics, attached to the Departments of Agriculture and Commerce.

The information obtained by the minister relating to epizootics, shall be communicated to the committee who give their advice as to the measures required.

§ 41. * * * *

PATHOLOGICAL PHYSIOLOGY.

INJECTIONS OF RABID VIRUS INTO THE CIRCULATION DO NOT PRODUCE HYDROPHOBIA, AND SEEM TO GIVE IMMUNITY.

By M. V. GALTIER.

The investigations of the author have brought him to the conclusion that :

1. Injections of rabid virus into the veins of a sheep will not give rise to symptoms of rabies, and seem to confer immunity against that disease.

2. Rabies can be transmitted by the injection of rabid matter, and, though the place where the inoculation in this case takes place has not yet been determined, it is nevertheless proved that there is danger of contracting the disease by all persons or animals in which, under whatever circumstances, the rabid virus may be introduced into the digestive organs.—*Academie des Sciences.*

TUBERCULOUS INFECTION BY THE LIQUIDS OF SECRETION AND THE SEROSITY FROM VACCINE PUSTULES.

By M. H. TOUSSAINT.

Saliva, nasal mucus and urine of tuberculous animals may transmit tuberculosis. The proof has been given by Mr. Villemain, who experimented from man to animals with the first two liquids.

It is with the secretions taken from a cow that the following experiments were made :

The inoculation was made with the lancet, at the base of the ear of three rabbits, with the clear and viscous fluid exuding ordinarily from the nostrils of the tuberculous cow. Two weeks after, the rabbits had local tubercles, and already shewed an increase in the consistency and size of the parotid ganglion ; the disease followed its ordinary course. The animals were killed on the seventieth day, and their lungs were found filled with tubercles, most of them in a state of grey granulation. A few had some caseous matter in the center.

Similar experiments were made, on the same day, with the saliva of the diseased cow, taken from the mouth. They gave the same result, though the lesions of the lungs were less advanced.

An injection of a few drops of urine from a hog was made at the base of the ear of a nearly full-grown rabbit. After a few weeks he begun to lose flesh, and death occurred after four months with caseous pneumonia.

Important conclusions can be drawn from these experiments in view of the hygienic measures proper to be taken in public slaughter-houses.

I made some experiments upon the same tuberculous cow, which seem to be of some importance in view of the danger of contagion which may result from the use of vaccine which has been obtained from a tuberculous subject.

The same cow was inoculated with the vaccine obtained from a child in perfect health, and of healthy parents. Seven punctures were made around the vulva. Several days after, the pustules were developed. On the seventh or eighth day, these having become umbilicated, I inoculated the serosity to four rabbits and one pig. Two rabbits, killed two months later, showed all the lesions of tuberculosis, local, ganglionic and pulmonary. The pig, at that time, presented one local tubercle, well developed. He will be killed later, but generalizations are already evident, and he is undoubtedly in a tuberculous condition.—*Academie des Sciences*.

VACCINATION AGAINST SYMPTOMATIC ANTHRAX.

By ARLOING AND CORNEVIN.

The discovery of M. Pasteur, relating to the attenuation of deadly virus to such an extent as to render it a vaccinal virus, was not destined to wait long before finding its application, not only in chicken cholera, but in anthrax, as other experiments of Pasteur & Toussaint have proved.

The discovery made by MM. Arloing and Cornevin differs from the other, as instead of the attenuated they have used the

deadly virus itself to transmit immunity. Indeed, in the form of anthrax, known as *symptomatic*, which is so essentially different from the bacteridian charbon, they have succeeded in giving immunity by the direct injection of the natural virus into the general circulation, through the veins, where its activity is reduced to such an extent that its entrance into the organism gives rise only to slight febrile phenomena which soon disappear. It is known that the injection of the similar virus into the subcutaneous tissue, or in the muscular structure proves very rapidly fatal.—*Gazette Medicale*.

COMPARATIVE PATHOLOGY.

IN RELATION TO THE IMMUNITY OF ANTHRAX.

By M. H. TOUSSAINT.

According to Mr. Toussaint the duration of immunity is in direct proportion to the severity of the first attack, or, in other words, to the energy of the vaccine, and in inverse ratio to the resistance of animals. In proof; in August, 1880, lambs of 10 to 20 months, as well as old ewes, were inoculated with very energetic virus, too much so indeed, as it killed several of the young subjects. In those which survived, as well as in the ewes, all the phenomena following the inoculation were very severe, but all have preserved their impunity to the present time—July, 1881.

At the same epoch, other lambs and ewes were inoculated with a much attenuated virus. The effect was very mild in the ewes, but was more serious in the young animals. They all resisted an inoculation made a month later, while a few of the ewes, reinoculated four months afterwards, died. The lambs to this day have preserved their immunity.

Heredity of immunity exists for the lamb. Seven ewes vaccinated in May, July and August, 1880, had lambs subsequently. Those inoculated in the first month of their life, as well as their mothers, resisted the disease.

This last is an important fact, as it seems to show that it is sufficient to inoculate the females to obtain indemnity for the flocks.—*Gazette Medicale*.

UPON A NEW PROCESS OF VACCINATION OF CHICKEN CHOLERA.

By M. H. TOUSSAINT.

Every one is acquainted with the interesting discourses of Mr. Parteur relating to chicken cholera, and how, by the continued action of oxygen, he has succeeded in producing in this so deadly virus, such effects of attenuation as to allow, with safety, of its use in vaccination.

The following arguments seem to indicate that the attenuation may be obtained in other conditions.

Three years ago I presented the Academy with observations upon a disease with microbes, which I assimilated to those studied in 1864 and 1865, by M. Davaine, differentiating it from anthrax, and which M. Leplat and Jaillard had taken for *sang de rate*.

In the month of October, 1878, I saw chicken cholera and had already in my mind assimilated that disease with the one I had observed in my experiments in the beginning of the year. The microbes of these two affections had a perfect resemblance, and showed a similar action in the rabbit. Further experiments of the same nature, made in 1879 and 1880 decided me to publish the paper under the title of "*Identity of acute experimental septicæmia and chicken cholera*," in which I recapitulated the facts demonstrated by five series of experiments, in proof that the manifestations of chicken cholera could be produced by inoculations of the microb of septicæmia.

Recent facts have appeared confirmatory of these results. I have just made two series of experiments—one with old carbuncular blood, which was sent to me, the other with a rabbit, killed very rapidly by the inoculation of blood taken twenty hours before from a tuberculous cow.

Rabbits inoculated with the carbunculous blood died in seven or eight hours with septicæmia. This altered blood contained a microbe nearly similar to that of chicken cholera. Inoculated

to pigeons, it killed them first in four or five days, then in three, again in two or in one day. Inoculated from the pigeons to the hens, the same results were obtained, to wit, that the first hen died in four or five days, and the others successively in three, in two and in one. In making these experiments I was careful to compare the lesions of chicken cholera with those resulting from inoculation. I had asked M. Parteur to send me the microbe of that disease, and I am constrained to say that the closest observations failed to establish any difference in the symptoms, the lesions of the skin, of the muscles and of the blood, nor in the cultures of these parasites. These experiments were made in different places and with special instruments for each case.

I then inoculated directly to hens the blood of the rabbits killed by septicæmia. The result was an attenuated virus, slight lesions of the skin and connective tissues underneath; sometimes slight alterations of the muscular fibres, but the hens in all the cases recovered, and became refractory to the cholera. The cultures of the blood of septicæmic rabbits act in the same manner. In this case the inoculation merely produces in hens a slight cicatrix of the skin, round and regular.

With this variety of septicæmia of the rabbit, which has no relation to that described by M. Pasteur, Joubert and Chamberlain in a previous note, a practical vaccine might be made which would greatly tend to arrest our most serious epizootics. A single inoculation in the tip of the tail would be all that is required in order to avoid depreciation in value. When septicæmia has killed the hen, after passing through the pigeon, its excessively violent properties, in reference to those two species, are preserved, even after inoculation to the rabbit.

The determining causes of epizootics in chicken cholera are yet unknown. It has been supposed that putrefying substances might give rise to it; hence the adoption of measures of cleanliness and disinfection which have been recommended. The microbe which killed the first hen in an epizootic has certainly come from an anterior generation which had killed others; but how was it perpetuated? Do not the facts which demonstrate the development of septicæmia in putrid matter throw some light on that etiology?

Is not the supposition admissible, that chickens find the conditions of their infection by cholera in the putrefying organic substances which may serve as a medium of culture to the germs of septicæmia which are in suspension in the air, with those of putrefication?—*Gazette Medicale*.

AMERICAN VETERINARY COLLEGE HOSPITAL.

REPORTS OF CASES.

By R. H. HARRISON, D.V.S. House Surgeon.

THE REMOVAL OF A LARGE FUNGOID GROWTH AT THE ELBOW BY THE ELASTIC LIGATURE.

In a recent German Review, the application of the ligature as a means of removing tumors at the elbow, was highly recommended. The *modus operandi* consists in applying cords at the base of the tumor, removing and tightening them each day, until the sloughing of the tumor takes place. In a French editorial on the subject the manipulation was highly commended, but it was considered that an elastic ligature would be much better than the cord, as this would obviate the necessity of repeating the application every day, and would have the same desired result. In an article on the subject, by Dr. Coates, in the August number of the REVIEW, the use of the elastic ligature was fully described and several cases reported illustrating the beneficial results of its use. Since then we have used it again, and although the tumor was successfully removed, and the patient is now doing well, still certain objections to its use were indicated.

The case referred to was an aged black gelding used for trucking, and valued by his owner as an old and trusty servant. He had a large fungoid growth at the left elbow, larger than a man's head, and measuring twenty-five inches in circumference at its base; it was irregularly rounded and presented a large uneven granulating surface, bleeding to the touch, but not painful to the patient. It interfered considerably with locomotion and was a most disgusting eye-sore.

Late in one afternoon an elastic ligature was applied to the base of the growth, and the animal was tied up so he could not bite himself. Within half an hour the patient became very uneasy, continually pawing, and trying to rid himself of the source of annoyance. When seen the next morning the skin had not been cut through, considerable constitutional disturbance was manifest, the patient was uneasy, off his feed, and had a temperature of 103° ; pulse, 48; respiration, 24; the external ulcer was covered with antiseptic dressing powder to keep the flies away, and the carbolic spray was used at the point of ligation—towards evening the patient was less uneasy, though as yet there was no sign of the skin dividing.

After four days the skin was cut through and the ligature rapidly cut through the soft tissues, so that in two days after, the whole tumor came away, leaving a very large granulating surface even and healthy looking. The patient had lost much flesh during the removal of the growth, but afterwards rapidly improved. The after treatment consisted in cauterization of the edges of the wound with nitrate of silver and dressing powder over the granulations. After six weeks treatment the ulcer had contracted an inch and is now healing slowly from its edges.

The use of the ligature in this case was an experiment to see how it would work when the tumor was so large. The objections to its use are well pointed out.

The animal suffers great pain, especially when the amputation begins so tardily. Also, as in this case, when the weather is warm, the sloughing mass has an intolerable odor, and there is a great annoyance from flies, the whole mass becoming very shortly alive with maggots. But more than all, is the large granulating surface that is left, which heals so slowly. In the case reported it will take at least two months more for the wound to cicatrize. And it seems to me that the removal of large tumors, such as the one referred to in this case, would be more advantageous to the owner if performed by the ordinary mode of simple dissection.

POST MORTEM OF THE BLOODHOUND AFFECTED WITH EPITHELIAL
CANCER OF THE TAIL AND ANUS.

(Sequelæ of the case reported in the August number of the REVIEW.)

This patient was lately returned to us in a very emaciated condition, covered with bed sores, and so weak as not to be able to stand up without assistance. The owner reported that when he was discharged before he had improved rapidly in spirits and general condition until about three weeks previously, when he began to be dull and listless and grew thin, although he ate ravenously. A large abscess had developed at the elbow of the off fore leg, had opened and was now nearly healed.

Examining the animal carefully, extreme debility and emaciation were manifest, the temperature slightly elevated, the pulse weak, and respiration normal, although principally thoracic. The seat of the former tumors was free from any new growths, but a slight discharge of pus was noticed issuing from the anus. The rectum was emptied of impacted fæces and by introducing the finger, a tumor the size of a hen's egg could be felt superiorly in the middle of the pelvic cavity.

The dog was kept for two days under observation, and during that time would lie extended in his kennel and never move except when fed, then he would only raise his head, gulp his food, and assume again the same position. He was evidently suffering acutely, for he howled night and day. The owner was advised to have the animal destroyed, as other cancerous growths besides the one already mentioned were suspected, and also from the pitiable suffering and poor condition.

This was agreed to, and on post mortem examination three tumors were found—the first, rounded, flattened above and below, was situated at the crus penis, its weight six ounces; the second, the largest of all, was attached to the mesentery at the sub-lumbar region. It was ovoid in shape, and was very richly supplied with blood vessels. The surrounding lymphatics were all engorged and enlarged to three times their normal size. The third tumor, already mentioned, was situated on the upper part of

the pelvis, and communicated with the rectum by a small fistulous tract, thereby explaining the discharge of pus per anus.

These tumors did not, in all probability, exist when the animal was operated on before, but subsequently, for the rectum at the time was carefully explored and nothing detected; also, the rapid improvement after the incisions healed points to this supposition.

The fact of their subsequent formation can be readily understood: some cancerous germs were absorbed and deposited in the different places where these tumors were found.

A CASE OF PARONYCHIA IN THE HORSE.

Some time ago a very interesting case was discharged convalescent from the hospital of the American Veterinary College.

The subject was a fine gray Norman gelding, 8 years old and 15.2 hands high.

The history of the case was that he had been worked the day previous, and had been placed in his stall at night apparently perfectly well; when seen in the morning he was standing up with his near fore-foot elevated from the ground and unable to move. He was brought to the hospital in an ambulance, and when the foot was examined, from the fetlock to the hoof it was greatly swollen, of a dark red appearance, very tender on the slightest pressure, and the animal unable to sustain any weight upon it. No wound of any description could be detected.

The constitutional symptoms were very severe, the temperature being 105 deg., the pulse strong, hard, and frequent, and the respiration accelerated, together with complete loss of appetite. The shoe was removed, and the animal placed with his fore feet in cold water.

April 10th.—The next morning the general condition was about the same. The sole and frog were thinned away, as there was tenderness on pressure, and it was feared that there might be suppuration, resulting from a bruise of the foot, or from the application of a red-hot shoe. No pus was detected, the parts

were dressed with pads of oakum saturated with carbolic solution, and the feet again placed in cold water; alcohol stimulants were given, and a varied diet.

April 11th.—Fluctuation was distinctly manifest in the posterior part of the coronet, and it was freely opened; a large quantity of thick brown pus, with shreds of aponeurosis and cellular tissue escaped. Dressed with carbolized oakum with a hot poultice to stimulate the suppuration.

April 12th.—The skin from the fetlock to within half an inch of the heel, and from the lateral face of the coronet on the outside to the anterior face of the same, was gangrenous and about to slough. It was removed, leaving the tendon of the flexor perforans exposed, and the vein, artery and nerve on the inside, altogether a large irregular granulating surface. The antiseptic spray was used for fifteen minutes twice during the day, and the parts dressed with oakum and a bandage.

April 13th.—The patient eats much better; reacting fever has passed away; can bear some weight upon the foot; sloughing of the vein, artery and nerve on the inside.

April 14th to 16th.—Sloughing of more skin and the periplic ring. Pus was detected under the sole; opened, and pus evacuated, and diseased laminæ and plantar cushion removed; same dressing.

April 18th to 21st.—A fistulous tract extending from the superior part of the wall on the inside to the sole was found and opened; discharge healthy; a three-quarter shoe tacked on and bottom of foot dressed with plates; pressure applied to the upper wound, which is granulating nicely.

April 22d.—The sole on the inside removed, escape of much pus; appearance of a slight tendinous synovial discharge.

April 23d to May 12th.—Parts doing well, upper wound rapidly filling up and closing in from the edges; lower wound doing well; is kept relieved from pressure by thinning the horn around it, and a dressing of oakum saturated with aloes and carbolic sal. applied.

26th.—Parts dressed every other day; the spray continued all the time; the superior wound presents an even granulating surface;

surrounded by cicatricial tissue; the bottom wound entirely healed; there is very little disfiguration of the digit; animal but slightly lame; discharged and ordered to be brought back occasionally to be dressed.

There has been no similar condition recorded in English veterinary literature that I have been able to find. The symptoms presented and the complications which ensued resemble the condition described in human surgery as paronychia of the variety that is seated in the subcutaneous alveolar tissue, which arises from no appreciable cause, runs an acute course, and has a tendency to supuration, gangrene and sloughing.

The pain manifest and the appearance of the primary swelling in this case were identical with it, together with the reacting fever.

PULMONARY APOPLEXY IN A DEER.

This animal was sent from the Central Park to be examined, having suddenly died on the 7th inst.

The chief lesions were found in the thoracic cavity. The external surface of the lungs was dark colored, almost black. The pulmonary vessels were intensely congested, and some of the capillaries were ruptured, allowing an extravasation of blood into the parenchyma, and some of the other vessels were plugged with emboli.

On section, the lung tissue presented dark colored vessels filled with tarry blood, while here and there interspersed throughout were dark patches of extravasation.

The lungs were heavier than normal, sinking deeply in water, and were less crepitant to the touch than usual.

The right auricle was engorged with dark colored blood, and the right ventricle and the large vessels also were filled with clotted blood. The left side of the heart was empty.

Cause of Death.—Pulmonary apoplexy, induced by the excessively warm weather of the two previous days.

SOCIETY MEETINGS.

NINETEENTH ANNUAL MEETING OF THE UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The regular annual meeting of this Association met in the lecture-room of the American Veterinary College, September 20th, at 11:45 A. M., the President, Prof. James L. Robertson, in the chair. Twenty-five members were present.

The Comitia Minora, in their report to the Association, recommended the following gentlemen as candidates for membership: John Dougherty, D.V.S.; R. H. Harrison, D.V.S.; M. Bunker, D.V.S.; J. E. McNicol, D.V.S.; D. J. Dixon, D.V.S.; W. W. Burt, D.V.S.; Jos. Bushman, M.R.C.V.S.; Fred. H. Osgood, M.R.C.V.S.

The minutes of the last meeting were read and adopted.

Reports of committees being next in order, the Association was favored by the Chairman of the Committee on Education and Intelligence with a report of the condition of veterinary medicine at the present time.

The action taken some time ago by the War Department in appointing none but regular graduates of recognized schools was referred to as a step in the elevation of our profession. It is, however, unfortunate, that the veterinarian's rank and pay is not better. In civil life we find a just recognition of our services. The report further stated that New Jersey had recently appointed a veterinarian as meat inspector, and concluded by urging the Association to use its endeavor to place veterinary colleges in the United States on an equality with those of Europe.

The Treasurer's report was then read and accepted. Some funds that came into the hands of the Editor of the AMERICAN VETERINARY REVIEW, after the action taken by the Association in regard to that journal at the March meeting, will be placed in the hands of the Treasurer.

Communications were received from Drs. Thayer, Colsson and Blakeley.

The candidates recommended by the Comitia Minora were balloted for and admitted as members.

Applications for membership were presented by the following gentlemen: Messrs. Michael W. Birch, Jas. McCoart, Jas. A. Marshall, Robt. Gladfetter, Wm. A. Birch, Chas. S. Devlin, Jas. J. Jimberman.

The following officers were elected for the ensuing year: President, W. Bryden; Vice-President, L. McLean; Secretary, C. B. Michener; Treasurer, Chas. Burden; Censors, Drs. Liautard, Lyman, Lockhart, J. S. Saunders, Robertson and Michener.

The President, on taking the chair, thanked the Association for the honor conferred, and pledged himself to work zealously in the interests of the Association.

On motion of Dr. L. McLean, it was resolved that after the present year the annual dues to the society should be \$2.00, the initiation fee remaining the same as heretofore—*i.e.*, \$5.00.

On motion, the names of all those whose initiation fees had not been paid were dropped from the roll.

Sections 2 and 3 of Article 8 were referred to the Committee on Intelligence and Education, with directions to report at the March meeting.

The names of John Duane, Jr., D.V.S., and F. W. McClellan, V.S., were added to the list of applicants for membership.

Drs. J. E. McNicol, L. McLean and Robertson were appointed a committee to draft a preamble and resolutions expressive of the society's deep sorrow at the death of President James A. Garfield.

The paper presented to the meeting by Dr. Holcombe on army veterinary medicine, etc., was ordered printed in the REVIEW, and that the committee to whom it was referred report what further action it may be deemed best to be taken at our next meeting.

Dr. Lyman detailed the post-mortem appearances of the so-called Nova Scotia cattle disease. It is to be hoped that at some future time the society may be favored with a paper on the subject by Dr. Thayer or Prof. McEachran—both of these gentlemen having investigated the matter.

The time for adjournment having arrived, most of the members and their guests repaired to the annual dinner at Delmonico's.

C. B. MICHENER, *Secretary*.

IN MEMORIAM.

Jas. A. Garfield, President U. S.

At the annual meeting of the United States Veterinary Medical Association, held in this city, Tuesday, September 20, 1881, the following preamble and resolutions were adopted :

Whereas, In the dispensation of Providence we are called to mourn the loss of the chief executive officer of the Nation, stricken down by the hand of the assassin while in the prime of an honorable manhood, in the full plenitude of power, and at the outset of a career that argued well for the peace and prosperity of our common country, and

Whereas, In this sad affliction, which in some degree has become the heritage of the people, while we may not understand the inscrutable ways of God in this National bereavement, still we take hope and courage for the future in the assurance that "God reigns." The dead in these memorable words yet speaks.

Resolved, That in this calamity, which the whole people had fondly hoped would be averted, a four-fold cord has been broken, the aged mother loses a son, the wife a husband, the children a father, the country its President.

Resolved, That while sorrowing, yet not without hope, while paying our tribute of affection to the Nation's dead, we tender our loyal support to him who has been called to assume the direction of Governmental affairs.

Resolved, That we further tender our sincere and heartfelt sympathy to the family of our late President, who, through this season of trial and suffering, have borne themselves with a becoming fortitude. A light has been extinguished in the household, but the influence of a good man radiates even after death.

Resolved, That a copy be forwarded to the family, and that they be published in the daily papers.

NEWS AND SUNDRIES.

DURING the recent heated term in Paris upwards of 200 omnibus horses died within a week.—*American Cultivator*.

PROF. D. McEACHRAN, one of the members of the "Cochrane Ranche Co.," is reported to have expressed a very favorable impression of the Northwest for cattle raising. That company recently brought from Montana 9,000 head, and some pure breed bulls, short horn, polled Angus and Hereford.

THERE are thirteen million cows in the United States. This is more than are kept by any nation of Europe, Germany having the highest, 8,962,221.—*Farm and Home*.

A WONDERFUL EWE.—Mr. Matthew Scott, of England, has a crossed Blackface and South Down ewe, twenty-one years old, that has reared *thirty-six* lambs. We think this animal ought to be put on the British pension list for the remainder of her life.—*Nat. Live Stock Journal*.

THE Australians have a very stringent law for the eradication of scab in sheep. They have "State Scab Inspectors," whose business it is to see that the law is enforced. Every sheep owner who discovers indications of scab in his flock is obliged to notify all flock masters within a certain radius, of the fact, and also to post notices in public places. If the disease is not stamped out within 90 days, the diseased animals must be killed. The result has been that scab has almost disappeared from Australian flocks.—*The Prairie Farmer*.

CAPONIZING fowls is practised to a great extent in Pennsylvania and New Jersey. Its effect upon the fowls is that they grow one-third beyond their otherwise natural size, fatten more easily and rapidly on less food, and their flesh is of finer quality, the price they command in the market being 50 per cent. higher than that of ordinary fowls of the same age. As an illustration of their superiority, we quote from an exchange of a recent date the statement that "a man in New Jersey has just sold a lot of 250 capons, averaging 10 3-5 lbs. each; the heaviest pair weighing 28 lbs."—*Mass. Ploughman*,

THERE appeared during the month of August, on the farm of Mr. F. Balis, Dutchess Co., N. Y., a disease among the cattle that, from report, closely resembles some form of anthrax. Five cows in all have died. The stream supplying the cattle with drink comes from a marshy region where a great number of tenement houses are situated. Animals on this same farm have suffered similarly during recent years.

COL. MASON, in speaking of restrictions on American pork, says :

“The widespread prejudice against American meats can be adequately met and overcome only by a rigid system of official inspection by competent experts, appointed by the National or State Government, and empowered to use a seal or other device representing Governmental authority. In the European mind, an official seal is inferior in potency only to the edict of Royalty itself. American pork of all kinds is conceded by intelligent and fair-minded dealers to be the best in the market, and it is growing better year by year, as the methods of curing and packing for European consumption are improved. Through a combination of adverse interests and misfortunes, for some of which careless and avaricious American exporters have been responsible, these meats are temporarily under suspicion ; but there is apparently no difficulty in the present situation which a prompt, positive, and thorough policy may not meet and overcome. I beg to repeat that, in my opinion, the European traffic in American salted meats can never be fully restored until a system of official inspection is established, which shall carry with it the weight and force of Federal or State authority. * * * * Until some system of this description is adopted, the one per cent. of trichinous hogs which is conceded to exist in the United States will prove a serious obstacle to the maintenance and further development of our export trade in meats. The European meats with which our own come into competition are nearly all officially inspected, and until American hams and bacon bear the official examination, they will be, in presence of existing prejudices, at a serious disadvantage in the markets of the Old World. It is within the

power of the American meat exporters to turn the momentarily disastrous pork panic of 1881 into an opportunity for making their meats more widely and favorably known than ever before. They are fighting a defensive battle, but they can win it."

SHIPMENTS WEST OF EASTERN CALVES.—The recently-appointed "Treasury Cattle Commission" have issued the following circular, addressed especially to the Governors of the States and Territories west of the Alleghanies:

OFFICE OF THE UNITED STATES
TREASURY CATTLE COMMISSION,
CHICAGO, Aug. 23, 1881. }

Dear Sir—The "Treasury Cattle Commission" appointed by the Secretary of the Treasury, in pursuance of an act of the last Congress, deem it their duty to call your attention to the imminence of the danger to which the herds in the States and Territories west of the Alleghanies are exposed from the traffic in dairy calves, which is becoming a very common one between these States—now happily exempt from the contagious pleuropneumonia of cattle—and the infected districts. That a very large proportion of our country has, up to this time, remained exempt from this dangerous malady, is owing chiefly to the fact that the current of our cattle traffic has heretofore been mainly from the West toward the seaboard; but the business of purchasing calves from the eastern dairy districts and scattering them throughout the Western States and Territories, which has, within a year or two past, assumed such mammoth proportions, has augmented the danger to which the uninfected districts are exposed tenfold; and if it is permitted to go on unchecked, the danger of a general infection of the great cattle growing and grazing regions is imminent.

We, therefore, call upon you to use whatever influence you may legitimately bring to bear upon the people of your State to discountenance and discourage a traffic that is fraught with such danger to their material interests. The district known to be infected with the scourge embraces pretty much the whole of the country bordering on the coast, from New York city southward to Washington city, and extending to a greater or less distance

inland; but the commission would recommend that until a more thorough examination can be made, and a complete isolation of infected herds can be secured, every possible means that can be legitimately resorted to should be brought to bear to discourage and prohibit traffic in cattle from anywhere near the infected regions.

JAMES LAW,
E. F. THAYER,
J. H. SANDERS,
Commissioners.

—*The Cultivator and Country Gentleman.*

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Veterinarian, Veterinary Journal, Clinica Veterinaria, Revue für Thierheilkunde und Thierzucht, Archives Veterinaires, Recueil de Médecine Veterinaire, Journal de Zoötechnie, Revue Dosimetrique, Presse Veterinaire, Annales de Belgique.

HOME.—American Agriculturist, Turf, Field and Farm, Prairie Farmer, National Live Stock Journal, Medical and Surgical Reporter, Medical Record, Maine Farmer, New York Times, Journal of Agriculture.

JOURNALS.—Iowa Farmer, Ohio Farmer, Practical Farmer, Ploughman, American Cultivator.

CORRESPONDENCE.—W. H. Hoskins, W. F. Derr, N. S. Townshend, M.D., Robt. Harrison, C. B. Michener, A. A. Holcombe.

AMERICAN VETERINARY REVIEW,

NOVEMBER, 1881.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 274.)

CORNS—(Continued).

IV. *Pathological Anatomy.*—The lesions vary according to the severity of the disease. In *dry corn*, we find an infiltration of blood in the horny structure. This is blood which has transudated through the laminated or irritated velvety tissue from the injured blood vessels. This blood gives to the hoof various tints, more or less pronounced, not unfrequently yellowish, according to the intensity and duration of the disease. The hoof sometimes loses consistency and becomes brittle; at others it is hard and dry, and then resembles healthy hoof minus its coloration. If the ecchymotic spot involves the whole thickness of the horn, from its surface to its depth, it is an evidence of the continued activity of the cause. A deep mark indicates a recent injury; a superficial one is an evidence of an older corn, which disappears, and then it seldom produces lameness. Sometimes the marks are arranged in layers, the healthy horn being alternated with others

which are infiltrated with blood. This is a proof of the intermittent character of the acting cause which has originally produced the corn. The ecchymosis, however, is not the actual seat of the corn, which is more in the velvety and especially in the laminated tissues, which are torn or bruised, the blood escaping through the sole simply by the action of the laws of gravitation. It is rarely that this lesion is looked for in case of dry corn, and it is usually ignored; but, in the confirmed corns, a true alteration of the laminae of the keraphyllous tissue is observed. This is replaced by a horny tumor, a kind of keraphyllocele, analogous to that of chronic laminitis, due to a union of the laminae under the influence of the fibro-plastic exudation resulting from the inflammation, which is of varying size, and presses more or less on the sub-horny tissues. In some cases, this horn breaks up little by little, and gives rise to quarter crack. The ecchymotic spots of dry corn may vary in size; they may range from the size of a pea to that of a ten-cent coin. At other times they may occupy the entire space between the bars and the walls of the foot.

In *moist corn*, there is not only hemorrhage, but also inflammation proper, with serous exudation. The hoof is colored, as in dry corn, of a brownish tint, due to the infiltration of blood which occurred at the start; on searching deeper, one will discover between the hoof and the living tissues beneath a separation of varying dimensions, filled by citrine serosity. Most frequently, this separation takes place at the line of union of the sole with the wall, and extends under both. The horny substance is then more or less impregnated with this serosity, and then has a characteristic yellow appearance and a waxy consistency.

In *suppurative corns*, or more properly, suppurating, the inflammation ends in suppuration. The pus is secreted by the velvety and laminated tissues. It makes room for itself by gradually separating the hoof as its formation progresses. Before long it passes between the podophyllous grooves of the bars and of the quarters, the horny are loosened from the fleshy laminae, and in its ascending progress the pus soon makes its appearance between hairs and hoof at the quarter, at the heels, or at the glomes of the frog. It is not common for the pus to make its way through

a hoof of too thick or resisting a nature, unless it has first been sufficiently softened by poultices and thinned down by the knife. This suppuration, in the generality of cases, brings on serious complications, by the excessive pressure to which the sub-horny tissues are then subjected. Gangrene of the velvety tissue near the branches of the sole and of the podophyllous grooves which have been macerated in the suppuration, are very common complications. If the pus remains long in the hoof, its gangrenous results may extend to the os pedis, the lateral cartilage, the plantar cushion, and even to the plantar aponeurosis, and give rise to necrosis or caries of the bones, or to quittor, to a more or less variable extent. This sub-horny suppuration, which may sometimes be considerable, as well as the complications accompanying it, are detected with the probe.

V. *Termination and Prognosis*.—Resolution is a common termination of corns. But their relapse is common also, especially in feet predisposed to them by bad conformation. A kind of chronic condition of the disease, and one which is more liable to become serious than the accidental variety, is the ordinary termination in this case. The mere extent of the disease is of less importance in the diagnosis than the predisposing conditions. Generally, the dry corn is less serious than the moist one, and especially less than the suppurative. Complicated corns, principally in flat, wide feet, with low heels, by reason of uncertain, protracted and expensive treatment, are in general fatal, and necessitate the destruction of the patient.

VI. *Treatment*.—The largeness of the space we have consumed in considering the etiology of corns will compel us to be brief in our remarks upon the *preventive treatment*. Shoeing, which is so often the cause of corns, may also be made a means of preventing them, even upon predisposed feet, if performed with intelligence and proper observation, based upon the anatomy and physiology of the foot. Generally speaking, one must not proceed rashly by changing too suddenly the mode of shoeing. We do not think that any one specified system of shoeing will with certainty prevent corns, but we do believe that each case demands its special study and care. Usually, a flat shoe, and

which has the heels rather thin but resisting, and which rests on the wall proper, even of the diseased one, if not too painful, is to be preferred. If the shoe is for a low-heeled foot, the heels of the shoe should be thicker in order to supply their insufficient height and to offer more resistance to the weight of the body. Sometimes the protecting effect of the shoe must be completed by the use of a plate of gutta percha or leather between the foot and the shoe; India rubber does not answer, as by its elasticity it interferes with the resistance of the shoe. It is absolutely necessary to preserve the hoof in a sufficiently supple condition, to effect which tar, hoof ointments, and other greasy substances are used. Flaxseed meal, poultices of cow manure and salt water, a damp bedding, tallow in the hollows of the heels, all are very good preventives and even curative means, which a careful hostler will not neglect. Paring the feet thin, as practiced by some, is very objectionable, and is a serious obstacle to the extirpation of corns. The feet should be pared as little as possible, especially at the heels or in the lacunæ.

As for the *curative treatment*, there are, according to H. Bouley, four indications to follow: First, remove the acting cause; second, treat the injury it has produced; third, relieve the pressure upon the diseased region, until it has returned to its healthy condition; fourth, prevent the return of the injury.

The first indication is easy to fulfil with the accidental corn, but often nearly impossible in that due to a bad conformation of the feet. The second indication varies according to the extent of the disease. Generally it is advised to thin down the hoof at the bruised part and its surroundings, so as to relieve the pressure on congested or inflamed parts. Still, we are not in favor of too much thinning of the hoof, and except under peculiar conditions, would practice it very slightly. Even in the moist corn, we believe in leaving to the hoof a certain protective thickness. The pressure can be sensibly diminished by the application of chloroformed-oil, or of tincture of creasote; they very readily penetrate the hoof, and act directly upon the inflamed parts. We believe that excessive paring, the "cutting out of the corns," to use the shoer's expression, is injurious, and predisposes to new

corns, by weakening the region and promoting a more rapid desiccation and contraction of the hoof. In all cases of dry and moist corn, one must avoid making the parts bleed, the exposure of the soft tissues, and all unnecessary cutting. Thinning is necessary in suppurative corn; and has to be done over the whole extent of the separation of the horn, and a wide channel of exit made for the pus on the side of the sole. It is a wise plan not to remove the entire mass of the loosened hoof, as by this the dressing will be much facilitated.

Cold baths are useful in all cases of corns; at other times poultices of bran or other material are preferred. Sometimes sulphate of iron or of copper are added to the bath, especially in the moist corn. In the suppurative kind, when the suppuration is irregular, and when complications are likely to follow, warm and slightly aromatic baths are better, and after this, a dressing with tincture of creosote, renewed the same day or the next. Later, cold iron or copper baths may be used again; if the suppuration has broken out between hairs and hoofs, injections of Villates' solution, after free escape of the pus by the plantar surface, are indicated.

In the complicated suppurative corn these means are insufficient. We must cut deeper, and for this the animal must be thrown. Then, when the diseased tissues are exposed by the removal of the loosened hoof, the nature of the lesions must indicate the requirements of the treatment. The velvety and podophyllous tissues, if gangrenous, must be excised as far as their diseased condition extends; carious bone is to be scraped; the fibrous and fibro-cartilaginous structures, if necrosed, are to be excised or cauterized, or sometimes left alone and watched, according to the peculiar character and extent of their lesions and the extent to which they exist. Once operated on, a dressing with plates and bands is applied, and the animal allowed to rise.

It is by a peculiar shoeing that, for some time, the painful heel must be relieved from supporting its part of the weight of the body, and protected from outside pressure. This is the "bar shoe." By the transverse bar, which unites both branches, it presents a support to the frog and protects the heels. The rest-

ing of the shoe takes place equally upon the wall of the toe and of the quarters, especially the external, and it does not rest on the diseased heels which may have been first cut away. Some veterinarians prefer the truncated, or the oblique bar shoe, or that with a bar forming an acute reentering angle; Hartmann recommends the first; Mayer prefers the bar shoe in which the bar or heels have been thinned down, and even hollowed, to avoid as much as possible the pressure on the diseased part; this shoe has sometimes given us good results in horses with a weak frog. In many cases, ordinary shoeing answers; then the diseased hoof is pared down. The branch of the shoe in this case requires a greater thickness. Whatever may be the mode of shoeing used, much advantage can be obtained by the application of a sole of leather or of gutta percha.

(To be continued.)

EPIZOOTIC CELLULITIS, OR PINKEYE, AT CINCINNATI.

By J. C. MYERS, JR., M.D., V.S.

A brief account of the epizootic cellulitis, or what is commonly termed pinkeye, as it attacked horses and mules at Cincinnati may not be out of place if the communication reaches you before the disease itself has infested the east.

After having made its appearance at St. Louis and Chicago it arrived at Cincinnati about the 20th of September, beginning at the western portion of the city, which lies on the Mill Creek Valley, a lowly situated effluvial district. The outbreak was not general in its attack. It hovered over the western locality about three weeks before it picked upon stables in the central and eastern districts of the city. The proportion of horses and mules attacked by the malady varied greatly in the different stables, regardless of their immediate surroundings and hygienic conditions. Some stables had their entire stock invaded, others between 90 and 33 per cent. or less, but in the majority of instances 75 per cent. were attacked to a greater or lesser extent.

It required from five to fifteen days before the disease picked upon all the victims that were doomed to become afflicted in any one stable. By this behavior of the epizootic the horse owners were able to pursue their business without serious interference. The violence of the seizures upon the different equines varied greatly. Some would appear a little indisposed for a few days, while others, especially old ones, would present all the symptoms appertaining to the disease in the most virulent form.

Symptomatology.—Languidness, impaired appetite and pendent head are the first appreciable symptoms, usually followed by a watery discharge from the eyes, which later, changes to a thick mucus. The eyelids puffy, in some cases everted and half closed. The cornea appears lusterless and conjunctiva hyperæmia. In a very small proportion of cases a discharge from the nostrils is perceived. The extremities are swollen, tender and hot. The swelling may extend clear up to the trunk, involving the sheath and vicinity of the linea alba.

A want of proper co-ordination partly due to an asthenic condition and in part to the inflamed limbs is a constant symptom of an aggravated case. Cough is seldom uttered. Impaired deglutition and glandular enlargement about the throat are wanting, neither does a redness of the schneiderian membrane exist. The fæces may be either tough or soft, mixed with mucous, or in some cases diarrhœa is present. The urine during the febrile stage is high colored and scanty, but later, the discharge becomes copious, with a lighter specific gravity.

The pulse ranges from 50 to 80 per minute during the first three days of sickness. The clinical thermometer may indicate a rise in the temperature from 1 to 6 degrees during the first stage, but on or after the third day both pulse and temperature drop suddenly to almost the normal standard, when the most attention is directed to the swollen limbs or affected eyes, as the case may be. Respiration at the outset is invariably increased, but without any abnormal murmurs to be heard on auscultation of the lungs if there is no pulmonary disease in connection, which fortunately is exceedingly rare. Purpura hemorrhagica has not to my knowledge made its appearance as a complication or sequel of

pinkeye as yet. Although the limbs of exaggerated cases are swollen to a marked extent, no bloody extravasations are visible. Laminitis is the only complication of any importance that has come under my observation, and this only in four cases which, under proper treatment, rallied very soon.

The course of the disease ranged from 3 to 10 days, "barring complications." The prognosis is good.

The insidious manner with which this disease progresses is far more desirable to both horse owners and practitioners than the rash and universal invasion of the former epizootic "influenza," as it does not render the entire equine species unfit for service at one time. It creeps along so slowly that the first half of the infected animals are convalescent before the last half are taken sick, and in this way avoids any serious delay in business circles. Moreover, the veterinarian has a better opportunity to devote his attention to the fewer patients he in this way has, than to the multitude he would otherwise have if the whole city was stricken with the epizootic cellulitis or pinkeye at one time.

EPIZOOTIC INFLUENZA IN THE WEST.

BY A. A. HOLCOMBE, D.V.S.

Less than a month ago the daily papers of Missouri and Iowa announced the prevalence of "a new disease" among the horses of the cities and principal towns of those two States. It was said that no one knew the exact nature of the strange malady, which was described as being sudden in its attack, causing great weakness accompanied by extensive swelling of the legs and some discharge from the nose and eyes. Report said that nearly all the horses in an infected district became subjects of the disease, that many died, but that mules seemed exempt from the contagion.

When the outbreak in Kansas City, Mo., had become pretty general, I was ordered to investigate it, so as to determine what it was and the necessary precautions to be adopted to protect the public animals at this station. A visit to Kansas City was accordingly made, and a large number of sick animals seen. In some

stables nearly every animal was found affected, while in others, perhaps only next door, there would not be a single case. The outbreak is particularly characterized by great debility of the circulation, and as a consequence, marked œdema of the extremities results. There is almost an entire absence of laryngeal and thoracic complication, and in but few instances are there discharges from the nostrils. The temperature rarely goes beyond 105° F. The characteristics, suddenness of attack, extreme weakness, loss of appetite, etc., which belong to the disease, are of course present.

I presume that under such circumstances purpura hæmorrhagica might be anticipated as a frequent sequel, but as yet I have seen only two cases.

Cases of the disease respond more quickly to treatment than has been customary in the former epizootics which I have witnessed. General stimulants combined with heart tonics are all the remedies that seem to be required, owing to the absence of varied local complications.

In the epizootic of last year, adenitis, laryngitis, bronchitis and pneumonia were quite common complications.

Unlike the former visitations of this disease, there are many stables as yet not affected, and it would seem from present indications, that they are likely to escape entirely. The weather is favorable, though, for its general prevalence. A majority of our days for the past two weeks have been cloudy, damp, often rainy, and the changes of temperature frequent and marked.

I have seen no fatal cases.

VESICAL CALCULUS IN A MARE.

BY R. D. EATON.

A brown mare, the property of Mr. Ira Vanguilder, was brought to my office suffering with great trouble of her urinary organs. On examination per vagina, I discovered in the bladder a large calculus which I thought was about the size of a goose egg. Doubting the possibility of successfully removing it, on

account of its size, I hesitated to operate on her; but the owner being willing to assume the risk, I proceeded as follows:

The animal being in a standing position, with one leg strapped up, I first drew the urine with the catheter, and having well oiled my hand, introduced it in the vaginal canal and applied fluid extract of belladonna upon the urethra. With the left hand I passed the lithotomy forceps into the bladder, and while there I gently guided the stone toward it. When firm hold upon the calculus had been obtained I withdrew the forceps with a rotary movement, and after a little while removed it. The bladder was washed with warm water and soap, and a drink of fluid extract *barosma crenata* and spirit. ether. nit. aa. $\frac{3}{4}$ ss., in a pint of warm water, administered.

The mare has done well ever since, and is hauling flour 18 miles every day.

EDITORIAL.

INFLUENZA.

Another outbreak of this disease has made its appearance, and reports come to us from many points of the country as to its existence and various modes of manifestation. In the west, where it started, a number of deaths are chronicled, and horse-car travel is affected. In the eastern States the disease is not in such a virulent form, nor are the cases so numerous; and, despite the efforts of a few whose improper reports and newspaper interviews have tended to frighten the public and owners of horses, the prospects are that it will prove far less troublesome than the epizootic of last year, and nothing in comparison with that of 1872.

Many and various opinions are expressed through the daily and agricultural press as to the cause, form and treatment of the disease. As to the first, we regret to say that any positive knowledge is not had at present, its etiology not being yet very well understood. The form most prevalent is the œdematous or, in some few instances, the rheumatoid.

The percentage of deaths is small, and no fears need be entertained of its assuming the serious proportions of similar past outbreaks.

Rest, hygienic treatment and supporting, nutritious diet have been the chiefly used indications.

Laminitis has been reported by some as a sequelæ of the disease, while in a few instances purpura-hemorrhagica has been the main complication.

ARMY VETERINARY MEDICINE.

We print in this number of the REVIEW the second part of the article on Army Veterinary Medicine, and will continue the last part in our December issue.

Written by one who sought entrance to the army for the purpose of determining by experience what the real difficulties surrounding the life of the army veterinarians are, we feel sure it will command the earnest attention of all who are interested in veterinary medicine, the advancement of the profession and the proper recognition of what is, or should be, a most important army officer—the veterinary surgeon.

To the Government we commend it for consideration in the belief that it will enlist her interference in behalf of her petitioners. It is not only degrading, but demoralizing, for the educated veterinarian to serve in the army under existing regulations. To place the veterinary surgeon below the *farrier*, the *chief-packer*, the *telegraph operator*, the *mechanic*, the *civilian's clerk*, and the *forage-master* or *train-master*, is an insult to any common intelligence or to the self-respect of any educated veterinary surgeon.

The duty devolving on the veterinarian is not only at times most arduous, but attended with grave dangers and by results of the utmost importance. The value of the services rendered by the employees who are better paid than the veterinary surgeon are insignificant when compared with the duties of the latter.

If the Government would have an Army Veterinary Department worthy of the name, and one that can render invaluable

service not only to the army but to the whole country, that department must be reorganized and the veterinary surgeon receive a proper recognition.

The first step in the right direction is to make the veterinarian a COMMISSIONED OFFICER.

FRACTURE OF ALL THE SESAMOID BONES.

It is not uncommon to meet a case where from apparently no cause at one, and sometimes at two legs, fracture of the sesamoid bones occurs, the fetlock dropping down by giving way of the superior sesamoid ligament, carrying with it fragments of the fractured bone.

An unusual case is published in the October number of the *Veterinary Journal*, where this lesion has taken place in the four legs. The history of the case is the same as the one obtained in similar injury, the symptoms showing themselves suddenly, without overwork, and the lesions being those always met in similar cases.

A full description will be found in this number of the REVIEW.

HOG CHOLERA IN NEW JERSEY.

From information received through one of our correspondents, Dr. J. Hopkins, this disease has found its way to the east from Ohio. In the first part of October Dr. H. was requested to examine into the cause of sickness and death among the swine on a farm in Monmouth Co. The Doctor found four dead and three sick, the autopsies confirming the diagnosis made. The owner of this herd had recently bought a number of pigs in New York city, but coming from Ohio. About a week after their arrival they began to sicken and die. Eleven of those from Ohio had died, and the last one was moribund at the time of the visit. The home herd was beginning to show the results of bad company, two being diseased.

Another party who had bought ten head from the same dealer, had already lost three and had more on the sick list.

ARMY VETERINARY MEDICINE.

ITS HISTORY ; THE PRESENT CONDITION OF THE ARMY VETERINARY SURGEON ; HIS RIGHTS AS A REPRESENTATIVE OF A SCIENTIFIC PROFESSION AND WHAT IS REQUIRED BY THE GOVERNMENT TO ESTABLISH AN EFFICIENT VETERINARY DEPARTMENT.

BY A. A. HOLCOMBE, D.V.S., Veterinary Inspector U. S. A.

(Continued from page 299.)

The Board has endeavored to keep the numbers and quantities of the articles in the above table down to the minimum required for the proper treatment of the diseases of the horse, and it feels convinced that a more limited supply table would not enable the veterinary surgeons to carry out the practice indicated by the most recent and advanced writers on the principles and practice of veterinary medicine and surgery.

In order to encourage thoroughness and system in the study and treatment of the diseases of the horse, as well as to furnish information regarding the management of the veterinary department of the army, a monthly report of sick and wounded for each company and battery, similar to that adopted by the Medical Department, should be forwarded by veterinary surgeons and company farriers, through the company and post commanders to the Quartermaster-General. While the number of instruments recommended is less than can be found at any ordinary veterinary hospital in civil life in this country, still they are believed to be sufficient. The first cost for an outfit for the army will be \$25,000, which under ordinary use and wear should last for ten years. It is believed that a great saving in the purchase of this outfit could be made if it were done by an officer familiar with the use of veterinary instruments.

The panniers should, like those in use by the Medical Department, be so arranged as to contain only articles that are on the supply table. They should contain the articles of medicine in quantities allowed for one hundred horses in field service for three months, and a pocket case ball forceps, corkscrew, 6 oz. graduate glass, prescription scales, 2 spatulas, 16-ounce syringe, memorandum book, and two lead-pencils.

Believing that a properly-constructed and well-arranged pannier would be of great service for cavalry use, the Board will, if the supply table is approved, supervise the construction of a sample to guide the makers in getting them up. This can be done at the cavalry depot, with the skill and material at hand. The accompanying form for monthly veterinary reports is respectfully submitted.

(Signed) _

C. GROVER,

Col. 1st Cavalry, President.

EDW. P. VOLLUM,

Surgeon U. S. Army,

E. B. GRIMES,

Captain, A. Q. M. Recorder.

(The form of report submitted by the Board is added at the end of this order.)

“II. At the headquarters depots or larger posts of cavalry regiments, the standard supplies of instruments and medicines will be under the charge of the Quartermaster, to be issued by him to the smaller commands of the regiment in such quantities and of such articles as may be deemed requisite, conformably to the allowance fixed by the standard supply table.”

“III. Hereafter appointments as veterinary surgeons will be confined to the graduates of established and reputable veterinary schools or colleges. They will be appointed by the Secretary of War in numbers not to exceed the legal establishment, and only on recommendation from the commanding officer of the regiment, supported by the requisite proofs of learning and skill, and by approval of intermediate commanders.”

“IV. The visits of inspection and instruction by the veterinary surgeons will be made under the direction of the commanding Generals of Departments and Divisions.”

The “Monthly Veterinary Report of sick and wounded,” a blank form of which is annexed to the Order, simply required the number “Remaining under treatment from last month,” “Total to be accounted for,” “Returned to duty,” “Transferred to another hospital or command,” “Condemned to be sold or killed,” “Lost, strayed or stolen while under treatment,” and the specify-

ing which were horses, mules or oxen, the command to which they belonged, etc. But the "Directions" under the head of "Remarks," if properly complied with would supply very interesting and valuable information. They are as follows: "Here make any necessary explanations and communicate any matters of interest with regard to prevailing diseases or sanitary condition of the animals. Interesting cases and autopsies should be communicated in full, either in this place or in an accompanying letter. In case a hospital is opened or closed during the month, it should be stated by whose order and on what day. When the command is moving, the station on the first and last of the month and the rate should be given. When possible, name the breed and stock of animals most subject to diseases, and state the diseases to which they are most liable."

This, then, is the order which at the present time governs the appointment of veterinary surgeons to the various cavalry regiments of the U. S. army, regulates the supply of medicines, dressings and instruments for his use, and in part determines his duties. Before reference is made to the individual veterinary surgeons who served in the army prior to 1879, let us review the foregoing orders, and placing them beside contemporary events of importance which characterize the growth of veterinary medicine in the United States, see whether or not the Government has given the profession that recognition which it could, by reason of its position in the world of science, justly expect.

It is not surprising that the army contained no veterinary surgeons prior to 1861, when it is remembered that there were so few in the country and so little requirement for them in an army containing but two regiments of dragoons, two regiments of cavalry and one regiment of mounted riflemen, besides the horses and mules of the Quartermaster's Department. But early in 1861, a few weeks after the opening of the War of the Rebellion (May 4, 1861), when the first increase in the cavalry service was made, the Government recognized the importance of veterinary surgery by creating the office of Veterinary Sergeant. True, the position was not one that could tempt a veterinary surgeon to enlist in the service unless actuated by pure enthusiastic patriot-

ism, yet when viewed from the proper standpoint the Government's action was a worthy tribute to a profession as yet scarcely born to American soil.

Turning to Liautard's "History and Progress of Veterinary Medicine," published in the first issue of the *AMERICAN VETERINARY REVIEW* of 1877, we find that at this time the public could have known but little of our profession, for there were but few practitioners all told, and most of these were non-graduates, while as yet they had no representative organization. Only two States had recognized the profession—Massachusetts in 1855 by chartering the Boston Veterinary Institute, and New York in 1857 by chartering the New York College of Veterinary Surgeons. But at this date the first school had ceased to exist and the latter was not in working order, so that it can scarcely be said they had accomplished the acquaintance of the public.

To recognize then, even though in name only, that which had merely an existence at the time, must certainly be considered a flattering testimonial to the estimated value which the Government placed on veterinary medicine.

But the exigencies of war, particularly the terrible loss of horses and mules during the first two years, served to impress the Government with the importance of the service which veterinary surgeons might render, and so we find Congress taking the matter in hand, recognizing the Surgeon as distinct from the Sergeant and increasing his pay to \$75 per month. Not satisfied with this improvement, the War Department a little later in the year determined to test the candidate's qualifications by an examination before a board of officers before making an army Veterinary Surgeon of him.

Possibly it may be objected that this improvement in the Veterinary Surgeon's position was not productive of the results which no doubt were desired, *i. e.*, the employment of *competent* Veterinary Surgeons, for it may with apparent reason be claimed that the compensation was not sufficient to secure their services.

While this view of the question is in part justifiable, a brief consideration of the circumstances will, I believe, conclusively prove that at that time no better terms could have been justly

offered, and that those offered were in reality comparatively liberal.

During these two years of war nothing of any importance had been achieved by our civil veterinarians, so that they at least had earned no right to a greater recognition from the Government than that to which they were entitled in 1861. From a costly experience the army had come to value more highly than at first the services of the veterinarian, but where was the Government to secure veterinary surgeons for army service? Certainly not from abroad, at *any* compensation; and surely not from our own country, where there were not enough at the time to properly officer the many regiments of cavalry and artillery, even if *all* of them were employed. The services of some could not of course be secured at any price, while some from physical disability could not withstand the rigors of campaigning. Others, if they served at all, would serve for money and for glory, but with not much care for the *glory*.

This, then, left but a few who had any claim to a knowledge of veterinary medicine whom the Government might hope to secure as Army Veterinary Surgeons, and under the circumstances her compensation must of necessity be such as to render injustice to the qualified veterinarian in that she might protect herself against the inefficiency of the self-instructed; for the great majority, if not all, were to come from the ranks of the latter.

Nor is this all that can be said in defence of the Government's position. When a comparison is made between the compensation given the Veterinary Surgeon and that given the Surgeon, it will be seen that in so far as salary was concerned the former was nearly as well paid as the latter; for the Assistant Surgeon of less than five years' service received but \$53.33 per month, with an allowance of four rations per day, two horses while on active duty in the field, and one servant.

The money value of an officer's ration was reckoned at thirty cents, which would add \$36 to his monthly pay, making his salary \$89.33 per month.

Regarding the allowances of the Veterinary Surgeon nothing is said by the Revised Statutes, but during the war he was

allowed one ration and a horse. The ration was paid in *kind*, not in money, and though common food was furnished, it was sufficient to live upon, and thus saved the expenditure of any money at officers' mess. This last item of expense to the officer certainly could not have been much less than \$15 per month, which would leave the Surgeon's income no greater than that of the Veterinary Surgeon. Upon the subject of pay, then, the Veterinary Surgeon had no reason to complain.

But it will be said the Veterinary Surgeon was not a commissioned officer. Very true. Nor were the majority of those who served at that time worthy of commissions. They were ill-bred, ignorant, shiftless men ; men without character, principle, veterinary instruction, or ability to earn an honest living. In the ranks, serving as private soldiers, were thousands of men well-bred, aspiring, talented and refined ; men from the higher ranks of life, who might grace any of the professions or lend a charm to any society.

To place the illiterate in authority over these by virtue of commissions unearned by bravery in the field, or undeserved from want of intelligence, would have been an injustice which I can scarcely believe would be demanded by the most radical advocate of professional rights.

The simple fact that Army Veterinary Surgeons were not commissioned officers, kept a number of educated veterinarians from entering the army during the war, and it was unfortunate for the profession, and for the Government as well, that her condition was such that the Government could not do more for us than she did. Had the circumstances been favorable, had there been as many Veterinary Surgeons in this country then as now, I have no doubt stress of circumstances would have been instrumental in securing for veterinary medicine that recognition to which we think she is now entitled.

That Congress has in the past been favorably inclined toward veterinary medicine in the army, is evinced by its action in the early part of 1866, when it added a Senior Veterinary Surgeon to the Seventh, Eighth, Ninth and Tenth regiments of cavalry, at the increased salary of \$100 per month ; and later in the same

year, by appropriating about \$12,000 with which to pay Alexander Dunbar for his services for one year instructing the Army Veterinary Surgeons and farriers in an "alleged discovery of a mode of treatment of the diseases of horses' feet."

I know this latter action of Congress has been severely criticised by the friends of our profession, not because of the generosity shown toward the profession, but because the confidence bestowed on Dunbar was misplaced, and he by ignorance, imposition and deceit, unjustly brought the good name of the profession into disrepute; for the public believed him to be a Veterinary Surgeon, and consequently measured the whole profession by him. And inasmuch as he had been endorsed by Congress, who can wonder that the public believed him to be the representative veterinary surgeon of the country?

What an advantage for the profession would it have been, and for the Government also, had Congress heeded the injunction of the late Hon. Fernando Wood, when on that memorable occasion he arose and in his dignified manner opposed the appropriation of \$25,000 with which to pay for Dunbar's services. "I am," he said, "advised by those who are judges of that subject, that the man is totally ignorant, that he knows nothing about the diseases of horses' feet, and that he rather perpetrates injury upon the poor animals than produces any benefit to them."

That this action of Congress was uninfluenced by recent events in the history of American veterinary medicine, would probably not be a logical inference, for during the interval from 1863 to 1866, the United States Veterinary Medical Association and the Pennsylvania Veterinary College had come into existence, and while the latter had not as yet accomplished any practical work in the interest of the profession, its endeavors to obtain a charter from the Pennsylvania Legislature had incited some discussions in that body and in the press, and had secured for it a not inconsiderable acquaintance with the public. The New York College of Veterinary Surgeons, whose charter had been obtained in 1857, had gained very little notoriety during this interval of nine years, but she had done some earnest work during the winters of 1864 and 1865 in giving full courses of lec-

tures to her first two classes. Yet so quietly and unostentatiously had this been done, that but a limited acquaintanceship with the general public had been secured, so that it can scarcely be thought this early work of the college had shaped any outside opinion in veterinary matters.

But the United States Veterinary Medical Association, by reason of its many members, who resided in different parts of several of the States, exercised an influence which was more widely felt. Although Congress at this time (1866) may not have known of the existence of this Association, undoubtedly the interest which it had awakened in the minds of stockholders had served to formulate the embryonic conception entertained by the public regarding the importance of veterinary medicine; and thus, imperceptibly as it were, had their influence extended, even in all probability, to the National Legislature.

That the Secretary of War appreciated the value of veterinary medicine in the army, is shown by his order in January, 1868, wherein he directs that all veterinary supplies be purchased from the Medical Department, thereby insuring for the animals medicines of the same quality as that furnished for officers and men. The importance of this order need not be dwelt upon by me; it speaks for itself, and speaks volumes for the perception of the War Department.

From this time on to 1879 the army had been gradually reduced in numbers, and veterinary medicine in connection therewith had received so little attention that it had almost become lost to sight. On the other hand, the veterinarians of civil life had been working hard for the elevation of their profession, and it had grown wondrously.

The New York College of Veterinary Surgeons had flourished, and passing through the ehrysalis stage had given birth to that infant of lusty growth, the American Veterinary College. Cornell University was laboring earnestly in the cause. Montreal and Ontario, Great Britain and Europe were sending us many graduates, among whom were some able workers. Veterinary medicine and its advantages had become household subjects of consideration in every district where stock was raised or used.

There was scarce an agricultural paper published that had not its veterinary department, in which subscribers' questions pertaining to the treatment of sick and disabled animals were answered. The medical journals and daily papers made frequent reference to the profession, and recognized its importance and acknowledged its growth. But where was the Army Veterinary Surgeon during all this time? What had Congress or the War Department done for him since 1868? The answer is simple enough, and embraced in a single word—*nothing*. He had in fact, been left to fight his own battles, unaided and seemingly unthought of, for no one appeared to know anything of his condition, his duties, his needs or his prospects.

But out of this gloom, like a sunburst from a darkly overcast sky, came the order of March 27, 1879, in which the Army Veterinary Surgeon was given a very good supply table, and greatest improvement of all, confining all future appointments in the army to "graduates of established and reputable veterinary schools or colleges."

I did not belong to the little corps of Army Veterinary Surgeons at that time, and so do not know with what feelings of pleasure and gratitude they received the order; but civilian as I and entirely unacquainted with the Army Veterinary Surgeon's was, life and lot, a thrill of satisfaction ran through my veins when I first read the order, for I felt that veterinary medicine was freed of a heavy incubus, and that the Army Veterinary Surgeon had the shaping of his future in his own hands; that he might hope in a few years at most, to receive that recognition which countries with fewer claims to a finished civilization, and less pretensions to a motherly fostering of the sciences, had already accorded to his more fortunate though not more deserving brother.

By this action of the War Department true veterinary surgery was recognized as distinct from quackery, and the value of a scientific education conceded. While this was not all that could have been expected from the Government, it was all the War Department had the power to concede.

A list of the Veterinary Surgeons who have served in the army during the interval embraced between the close of the war and

1879, I have not been able to obtain. My knowledge of some of them has been derived from a correspondence with those who still remain in the army, and from the testimony of persons who were acquainted with them. I can learn of but two of these who were graduates, Samuel G. Going and William H. Going, brothers, and both graduates of the Royal Veterinary College of England. They received their appointments from the Secretary of War in 1875. The former was assigned to the First Cavalry, then stationed at Benicia Barracks, Cal., the latter to the Third Cavalry, then as now serving in the department of the Platte.

I think it may justly be said that these two Veterinary Surgeons were the pioneers of army veterinary medicine. They entered the service without the excitement and glamour attendant on war, when so much is expected and oftentimes won, with a full knowledge that serving on the Indian frontier was not unattended with dangers.

They took their lives and training as Veterinary Surgeons into an army with which they could have had no sympathy, either by birth or education, and there as representatives sought to elevate their profession, which they found without status, while their services were without adequate compensation. Few perhaps appreciate the extent of the sacrifice which these Veterinary Surgeons made. The opportunities of the Veterinary Surgeon in civil life in this country are and have been many, and they as graduates of several years standing and experience had but little to contend with in obtaining establishments of their own, had they seen fit to make the attempt. In the army they could have no hope of earning a competence, even during a long life of service, and yet we find them persisting in their course, struggling for the rights of their profession without assistance, in a case that to them must at that time have looked hopeless indeed.

Samuel G. Going made the first report on record in the War Department ever made by a qualified Army Veterinary Surgeon. It bears date October 11, 1875, and gives the history of an outbreak of glanders in the First Cavalry, which lasted about two years. When he arrived at the post, shortly after his appointment, he at once recognized the nature of the disease, and out of

180 horses stationed there, immediately killed 79. Before the regiment was finally rid of the disease 170 animals were destroyed, entailing a loss of at least \$20,000, besides the destruction of stables, blankets, cinchas, halters, etc., which was necessary to prevent further contagion. The War Department recognized the value of the services rendered by publishing the report in an official circular in December, 1875.

About the same time, he prepared and drafted a bill to be presented to Congress, in which he set forth the value of the veterinarian's services to the army, his claims for a commission, and the advantages which would thereby accrue to both of the interested parties. His petition, the first of the kind made in behalf of the Army Veterinary Surgeon, unfortunately bore no fruits.

An untimely death at the hands of the Indians in 1876 prevented his further efforts in this direction, and the profession lost in him its most willing worker in the interest of army veterinary medicine.

The brother, William H. Going, while less conspicuous in individual action looking to the elevation of the profession, has nevertheless ardently seconded all endeavors in that direction, and has won for himself the esteem of the officers of the regiment with which he has served.

The profession owes them both a debt of gratitude for entering the army at a time when there was no distinction made between the educated and the ignorant, the graduate and the empiric.

Of the non-graduates serving in the army during this time, John Tempany served in the First Dragoons from 1858 until the end of his term of enlistment, when he was discharged, being at the time in the army of the Potomac. After a short time in civil practice in Jersey City, N. J., he returned to the service and was made Acting Veterinary Surgeon of the cavalry recruiting depot at Carlisle Barracks, Pa. From this point he was transferred to St. Louis Barracks, Mo. In 1872 he received appointment as Veterinary Surgeon to the Seventh Cavalry, but resigned in

1865. In March, 1879, he was appointed to the Ninth Cavalry, where he now serves as Junior Veterinary Surgeon.

"Dr." Huttinger was with the Seventh Cavalry for several years prior to his death in 1872, when the regiment was guarding a surveying party up the Yellowstone River, in Dakota. He was a great favorite with his regiment, being a kind, genial old man, but with no interest in the profession beyond a personal one.

"Dr." Stein, now of St. Paul, Min., served, I am told, for a number of years in the Seventh Cavalry also, but during what period, I do not know.

Solomon Bock in 1876 received appointment to the Fifth Cavalry, then stationed at Fort D. A. Russell, near Cheyenne, Wyoming Territory. He had received instruction during one session of the American Veterinary College, which he attended during the winter of 1875-76. Also some office instruction under one of the graduates of the college he attended. I have no knowledge of his having made any efforts to elevate the profession in its standing in the army.

Robert Schauner served for a length of time of which I have no definite knowledge, in the Fourth Cavalry, at Fort Riley, Kan. He too had attended one session at college, the New York College of Veterinary Surgeons, during the winter of 1872-73. He was discharged from the service in 1880, and his application for re-appointment as an instructor in veterinary medicine at Jefferson Barracks, Mo., made shortly afterward, was denied by the Secretary of War.

Samuel Burdett has also served in the Ninth Cavalry prior to 1879, but for how long a time I do not know.

My knowledge of S. W. Prentice, Veterinary Surgeon to the Tenth Cavalry, is also equally limited.

This, then, is the limited and defective history of veterinary medicine in the United States army, as I have been able to glean it with the facilities which I have had at hand, up to the 27th of March, 1879, when a new era begins. Those were the dark days before the dawn. Let us be thankful that they are past.

The period from March 27, 1879, to the present, can best be included in a consideration of

THE PRESENT CONDITION OF THE ARMY VETERINARY SURGEON.

In accordance with General Order No. 36, A. G. O., dated March 27, 1879, no one can receive an appointment as Veterinary Surgeon to the army unless he is first a graduate from an established and reputable veterinary school or college.

But the order, not being retroactive, left the unqualified Veterinary Surgeons already in the army in possession of their appointments, so that it will be some time before the army veterinary corps will be composed of graduates only.

There are two classes of Veterinary Surgeons in the army at present, as follows :

1st. "Inspecting Veterinary Surgeon," or "Department Veterinary Surgeon," employed in the Quartermaster's Department for the inspection of horses and mules presented to the Government for purchase ; for the treatment of sick and disabled animals belonging to the Government at the headquarters where stationed ; for the inspection or treatment of public animals at any post in the department ; the review of all inspection reports in which animals are condemned to be sold or destroyed, and the revision, with recommendation, of all requisitions for veterinary supplies.

As yet there is but one Department Veterinary Surgeon serving in the army. A. A. Holcombe, D.V.S., received the appointment to the department of the Missouri in August, 1880, and is stationed at Fort Leavenworth, Kans., the headquarters of the department. His salary is \$150 per month, with transportation, and \$4 per day added when away from his post on duty.

2d. The "Regimental Veterinary Surgeon" is allowed only to the ten cavalry regiments of the army, the artillery being without his services.

The candidates for appointment in a regiment must make application to its commanding officer, who if he sees fit, forwards the application, "supported by the requisite proofs of learning and skill," to the Secretary of War, who issues the warrant, providing he is satisfied with the candidate's credentials, and there has been no objection from "intermediate commanders." The Regimental Veterinary Surgeon ranks as a Sergeant-Major, the highest non-commissioned officer of the regiment.

In the regiments where two Veterinary Surgeons are serving, one ranks as the Senior and the other as the Junior Veterinary Surgeon. As remarked above, the date of warrant determines the seniority of rank.

At present but three regiments have Senior Veterinary Surgeons, the Seventh, Eighth and Ninth. In the Seventh William H. Going, M.R.C.V.S., appointed in 1875, is the incumbent, stationed at Fort Meade, Dakota Territory, the headquarters of the regiment.

Peter Peters, V.S., a graduate of the New York College of Veterinary Surgeons, was appointed senior of the Eighth in April, 1880, and is stationed with the headquarters of the regiment at Fort Clark, Texas.

The senior of the Ninth, a colored regiment, with headquarters at Santa Fe, New Mexico, is Samuel Burdett, date of appointment unknown. I know of but two advantages which the senior enjoys not vouchsafed to the junior—a higher salary and generally a better post and larger garrison. The pay of the Senior Veterinary Surgeon is \$100 per month. The pay of any other Veterinary Surgeon in the army is \$75 per month. He is allowed besides his salary, a horse, quarters and fuel, and medical attendance. While away from his post, on duty under orders, he is entitled to transportation and a per diem of \$4.

The First Regiment of Cavalry is without a Veterinary Surgeon. A graduate of the R. C. V. S. received the appointment to this regiment in the early part of 1880, but died of pneumonia the next day after his arrival. The headquarters of the regiment are at Fort Walla Walla, Washington Territory.*

The Second Cavalry Regiment, with headquarters at Fort Custer, Montana Territory, has for Veterinary Surgeon James Humphries, V.S., a graduate of Toronto, Canada, who received his appointment in September, 1879.

The Veterinary Surgeon of the Third Cavalry is C. L. Hings-ton, M.R.C.V.S., who received his appointment in June, 1880,

* Since the above was written, I have been informed that M. J. Treacy, M.R.C.V.S., has received appointment to this regiment, but have not had opportunity to verify the statement.

and is stationed at Fort D. A. Russell, near Cheyenne, Wyoming Territory.

The Fourth Cavalry, with headquarters at Fort Riley, Kans., is without a Veterinary Surgeon, although application was made for the position several months ago by D. J. Dixon, D.V.S., a graduate of the American Veterinary College.

In the Fifth Cavalry, with headquarters at Fort Laramie, Wyoming Territory, the Veterinary Surgeon is Solomon Bock, appointed in 1876.

Walter H. Hornblower, D.V.S., a graduate of the American Veterinary College, received appointment to the Sixth Cavalry in June, 1880, and is stationed at Whipple Barracks, near Prescott, Arizona Territory.

The Junior Veterinary Surgeon of the Seventh Cavalry is Cecil V. Leverett, M.R.C.V.S., who received his appointment in 18—, and is stationed at Fort Abraham Lincoln, Dakota Territory.

The Junior Veterinary Surgeon of the Eighth Cavalry is John B. Going, V.S., a graduate of the New York College of Veterinary Surgeons, whose appointment dates from April, 1880, and who is now stationed at Fort Ringgold, Texas.

The Junior Veterinary Surgeon of the Ninth Cavalry is John Tempany, whose appointment dates from March, 1879 ; stationed at Fort Cummings, New Mexico.

S. W. Service, who is Veterinary Surgeon to the Tenth Cavalry, I presume would be called the Junior of that regiment, but would become the Senior on appointment of another Veterinary Surgeon. He is stationed at Fort Concho, Texas. Date of appointment unknown.

PATHOLOGICAL PHYSIOLOGY.

CONTRIBUTION TO THE STUDY OF THE TRANSMISSION OF TUBERCULOSIS—INFECTION THROUGH THE JUICE OF WARM MEATS.

BY M. H. TOUSSAINT.

On the 29th of March, 1880, I had the honor of presenting to the Academy the first results that I had obtained by my re-

searches upon tuberculosis. It was then a question of the infection of eight pigs, either by the ingestion of the tuberculous lung of a cow, or by inoculation of the blood of a small pig, born of a tuberculous parent, which fed him and had died with the disease.

At the sitting of the 28th of June, M. Bouley presented you, from me, a bottle containing pieces of lung, liver, spleen, of the phrenic center, diaphragm, and lymphatic glands, presenting advanced lesions, obtained from a five-month-old pig, after subcutaneous injection of two cubic centimeters of the juice of muscle of a tuberculous cow, obtained by pressure.

Since that time I have studied tuberculosis in its various modes of infection, and I can say, after a number of experiments made upon pigs, rabbits and cats, that *no contagious disease possesses a greater virulency.*

Inoculation in the rabbit gives as positive results as anthrax. It is so also in all other species used for experiments.

In tuberculosis, all the fluids of the economy, the nasal mucus, saliva, serosity from the tissues, and urine, are virulent, and can originate the disease. As to the virus itself, of which I shall give you the nature later on, it resists and keeps its action at a temperature which *kills the bacteridie of anthrax.*

If, in human subjects, tuberculosis seems to be less virulent, it is because it often assumes a chronic form, which may continue for years, and often even end in recovery; yet it is no less dangerous, and physicians know that the number of recoveries can be counted. Contagion is also very difficult to observe, on account of the slow and gradual appearance of the symptoms.

Here are experiments which demonstrate *the resistance of the virus, and the danger of the use of the meat and other remains of tuberculous animals.*

First, by squeezing with a press, I extracted from the lung of a tuberculous cow, having an œdema of the anterior lobe, a certain quantity of fluid, slightly loaded with virus, almost transparent. One c.c.5 of this was injected under the skin of the inferior part of the ear of a *young pig* and ten drops to *two rabbits*. I then injected the same quantities of the same fluid, heated in a water bath to 55°-58° for ten minutes, to *four pigs* and *four rabbits* in the same regions.

These animals, placed in several locations, were kept under observation. I could easily observe the development and ordinary progress of the disease in local tubercles and hard swellings of the parotid ganglion.

The general infection showed itself very rapidly in all these animals. It is a curious fact that the rabbits, which received the heated fluid, died first.

One of the pigs was killed two months after the injection. The post mortem showed a local caseous tuberculosis, and an enormous parotid ganglion with cretaceous spots. The lung showed great quantities of grey granulations, and there were tubercles in the spleen and liver.

After three months, another pig was killed, as was also the one used as proof which had used the fluid unheated. The difference between the lesions of the two was very slight, though they were more advanced in the last.

The pulmonary tubercles of the pigs which had received the heated fluid were then inoculated to rabbits. They became diseased, and two of them, killed three months after, showed numerous lesions in the lung, spleen, kidneys and serous membranes.

Two of the pigs inoculated with the heated fluid are yet alive, after five months; one, however, is nearly dead.

Of the four rabbits inoculated with heated fluid, one died accidentally after thirty-five days. In this case the parotid ganglion was caseous, but the general infection did not yet exist. The other rabbits died with general tuberculosis, from the 164th to the 170th day; one presented lesions of the bones, largely developed on the anterior legs; the articulations of the shoulder and arm contained caseous pus, the articular surfaces and even a part of the diaphysis being entirely destroyed.

As to the rabbits inoculated with the cold fluid, one was killed after forty-three days, and exhibited numerous gray tubercles in the lungs and liver. The second, a doe, is yet living. Since the inoculation she has had three litters, in the first of which the little one died the day after birth. In the second she had five, which are kept with those of the third, in order to study the effect of heredity. As the doe is now in an advanced state of tuber-

culous disease, it will be interesting to follow the various conditions through which her little ones will pass.

Second, *slices of muscles of the thigh of a tuberculous sow were placed in a chafing-dish and heated by gas.* They were cooked rare and were then pressed, and the fluid obtained inoculated to two rabbits; two others receiving non-heated juice of the same muscles. *These last died in 120 days, almost at the same time, with caseous pneumonia, and tubercles in all the tissues.*

Of the two rabbits which received the heated juice, one was killed the 56th day after inoculation, and had local and ganglionic lesions, with grey granulations in the lungs, omentum and spleen. The other is yet alive, but in a declining state, and must soon die.

These facts are significant. They evidently prove the danger of both raw meats and of the juice of muscles scarcely heated, such as is given to children and weak persons. The infection takes place as easily by ingestion as by inoculation. It is indeed more correct to say that the disease inoculated through the digestive apparatus acts more rapidly, as all the intestinal ganglions may be affected together, which implies that the points of inoculation are more numerous than in the simple puncture of the skin.

It is generally the meat of beeves which is used to prepare meat juices. Many of these animals are tuberculous, and when one lung contains grey granulations, one may conclude that the infection is complete. Still, in the slaughter-houses, animals whose lungs are entirely diseased are seldom refused. I have often seen lungs containing as much as 35, even 40 kilogs. of tuberculous matter, taken from a cow whose meat had been allowed to be sold.—*Gazette Medicale.*

COMPARATIVE PATHOLOGY.

UPON THE PATHOGENY AND PROPHYLAXY OF PLEURO-PNEUMONIA
IN CATTLE.

By DR. POINCARÉ.

Our knowledge of the true nature of contagious pleuro-pneumonia is not yet complete, as the disease resembles neither the true inflammatory pneumonia, nor those diffuse and passive inflam-

mations which are met in other forms of pyrexia. The late researches aiming to discover some kind of parasite, either in the exudations, made by Weiss, Zurn, Hallier, Bruylants and Veriest, have not yet succeeded in showing the special agent of contagion.

Dr. Poincare has had the opportunity of examining the lungs of eight cows, dead with pleuro-pneumonia, six of which were in a barn at some distance from the city, and two in one of the suburbs of the same place, and in all cases he observed the following phenomena: In the meshes of the substances filling the bronchial cavities were found detritus, coming evidently from external sources, particles of straw, hay, starch granules, etc., indicating a state of nervous depression which had prevented the action of the reflex expulsive force. With these vegetable remains, he had also found threads of a cryptogamic production living, and manifesting its vitality after the death of the animal.

After a variable length of time, the myceliums of these parasites, twisting the meshes of the pulmonary structure, increase rapidly in an aqueous fluid, such as sugar water, as the penicellium do. They are flattened, ramified, and present some small vacuums here and there. The dimensions varied from 0^{mm} , 0084 to 0^{mm} , 0035.

The objections of the owners of animals have prevented Dr. P. from trying the experimental development of the disease by exclusive inoculation of this cryptogam; and thus he is unable to affirm that it is the first cause of pleuro-pneumonia. Experiments ought to be tried.—*Revue d'Hygiene*.

ETIOLOGY AND PATHOGENY OF THE VARIOLA OF THE PIGEON, AND DEVELOPMENT OF THE INFECTIOUS MICROBS IN THE LYMPH.

By DR. JOLYET.

Dr. Jolyet has found in the blood of pigeons, examined with the microscope, when they have been affected with variola, a large number of living microbs. The alteration is found in all affected birds, whether the disease develops itself apparently spontaneously, or is the result of inoculation. The first and second day after the inoculation, the blood, under the microscope presents

nothing abnormal, but towards the end of the third day, microbes begin to be seen, and during the following days, they increase largely in number, and when the pigeon presents the manifest symptoms of the disease, the preparation shows myriads of moving microbes.

The incubation corresponds with the development of the parasite; the invasion shows itself when it has multiplied, and the eruption coincides with its gradual diminution. The dry pus of the pustules contains characteristic microbes in great number, which like those of the blood, may produce the disease when inoculated on healthy subjects. When, in a certain number of pigeons, the cutaneous eruption is completely absent, and when at the same time the other symptoms take place as in ordinary cases, post mortem examination reveals then a true intestinal pustulation.

Dr. Jolyet considering that the blood and the lymph are pre-eminently the media of culture of the microbes of variola, either in animals or in man, has noticed that the examination of the blood often gives only negative results; when even the blood is almost healthy in appearance, the lymph is full of living microbes.

Similar experiments, made on animals reputed to be unable to contract variola (dogs and rabbits) because they have no cutaneous pustules, have given identical results, that is, a characteristic pustulation of the microbes in the lymph, as they can produce the eruption and complete variola in animals which take it naturally.—*Revue d'Hygiène.*

EXPERIMENTAL PATHOLOGY.

UPON EXPERIMENTAL TUBERCULOSIS.

By M. D. BRUNET.

The experiments of Mr. Toussaint upon the inoculation of tuberculosis have not proved sufficiently convincing to fully satisfy my judgment.

I have observed, as others have done, that the inoculation of foreign substances, other than tubercles, in the sub-cutaneous

tissue of the rabbit, very often produces tubercles in the lung of this animal.

I have inoculated nineteen rabbits, seven times for cancer, six times with pus simply, and six times with tuberculous matter.

Fourteen of these animals have become tuberculous; of which six had been inoculated with virus of cancer, three with pus and five with tuberculous matter.

The five other rabbits recovered.

These inoculations were performed in 1869.

The inoculation of cancer would then produce tuberculosis as well as tubercle itself, a fact which would tend to prove that the inoculated matter has not any specific influence, but acts specially as a foreign body, by producing an ambient inflammation to which tuberculosis seems due.

Pus, being easier to resolve than solid matter, produces a lesser inflammation, and hence, less often, tuberculosis.—*Gazette Medicale*.

EXTRACTS FROM FOREIGN JOURNALS.

NON-PARASITIC AFFECTIONS, RESEMBLING THAT OF HYDATIDS ON THE BRAIN, IN SHEEP.

BY M. BAILLIET.

The shepherd of the farm annexed to the Alfort School observed in his flock a sheep which presented marked symptoms of goggles. There had appeared suddenly, contrary to what is seen in ordinary tournis. The animal was three years and a half old. Scarcely had the flock left the barn when this sheep was noticed to stand back, walking with difficulty and with a sideway motion, and losing his way. He was brought home. The next day the same symptoms showed themselves, and two days after he was brought to the school to be killed.

On that day, says the author, I examined him and thought that I had evidently a case of giddiness. At rest he held his head low down and resting against the wall, and seeming to push against it. The pupils were well dilated on both sides. The head had no hairs in places, the eyes were somewhat injected, the cornea

offered some superficial lesions, producing a quite marked opacity, probably the result of blows against outside surfaces.

In the frontal region, on a line with both eyes, a little to the left of the median line, was a small tumor of the size of a hazel nut, hard and bony, to which little attention was paid. When the animal was forced to move, he was with little difficulty made to turn from left to right, but if left free in his movements, he turned to the left in a circle, which diminished little by little in diameter, especially after some excitement, until he seemed to turn round almost on himself as an axis. When killed, the post mortem showed that the tumor observed on the frontal region was only a local elevation of the left frontal sinus plate, and that in the diverticulum thus formed there existed a greenish-yellow pus, very thick, with no well marked odor, and evidently not of recent formation. The mucous membrane of the sinus was covered with greenish-yellow granulations. Above the orbits the floor of the sinus was considerably atrophied, and in some places the plate of the bone had disappeared. Similar atrophy still more marked existed on the level of the septum which separates the sinus from the cranial cavity. The brain was felt through. On the right side the frontal sinus was the seat of a slight inflammation. The brain at the point corresponding with the atrophy of the bony septum, showed the meninges highly inflamed and adherent to the brain substance. This had undergone superficial changes. The inflamed parts had a granular aspect, with a greenish-yellow discoloration. This occupied the anterior part of the parietal, close to the limits of the frontal lobe.—*Archives Veterinaires*.

A NEW PATHOGENIC BACILLUS.

BY C. S. EBERTH.

A bacillus has been found in the body of a badger belonging to the Zoological Garden, which had died after several days of sickness. It was principally on the periphery of small abscesses of the liver that it was observed. Its larger proportions distinguish it from the bacillus anthracis. This case is analagous to the bacterial hepatitis of young lambs, observed by Rivolta.—*Virchow's Archives*.

HOW THE BACILLUS OF SPLENIC APOPLEXY ACTS IN PRESENCE OF EXTREME LOW TEMPERATURES.BY A. FRISCH.

The cooling means employed in these experiments were of an extreme intensity—solid carbonic acid sprinkled with ether. The glass tubes were filled with a fluid highly virulent, obtained from animals affected with the disease, closed with spirit lamps and placed in the cooling mixture, everything being then put under a pneumatic machine. A temperature of -111° C. was obtained and recorded by a sulphate of carbon thermometer, and kept for four hours. Bacilli exposed to such extreme temperature could not develop themselves, when inoculated into living tissues, with their ordinary facility.—*Sitzungst der Ak.*

INJECTIONS OF RABID VIRUS INTO THE CIRCULATION DO NOT CAUSE THE APPEARANCE OF THE DISEASE, AND SEEM TO GIVE IMMUNITY.—RABIES MAY BE TRANSMITTED BY THE INGESTION OF RABID MATTER.

BY M. V. GALTIER.

Since the researches I have made upon rabies, I have several times injected rabid virus into the jugular veins of sheep, and have never seen the disease appear. Moreover, the subjects thus inoculated a first time, having afterwards been utilized for other experiments, and having been inoculated with the same virus by other ways, also resisted the disease. The principal facts observed are—

1st. The 4th of May, 1879, the inoculation of two sheep, one receiving the virus in the jugular, the other in the subcutaneous tissue. This last case becomes mad on the 10th of June and dies two days later. The other resists, and he is inoculated again by a different process on the 9th of October and the 23d of December, but does not become mad. He is kept for other observations.

2d. The 9th of October, 1879, three sheep are inoculated with rabid virus, two by pricks and scarifications, and one by intravenous injection. The two first die with rabies on the 26th and

27th of November; the other still survives, and on the 26th of March, 1880, he is reinoculated by pricks and scarifications, which is repeated on the 8th of July. He is killed on the 19th of December, without having contracted the disease.

3d. On the 19th of December, 1879, two sheep receive rabid saliva, one by hypodermic, the other by intra-venous injection. The first dies mad the 24th of January, 1880; the other, healthy on the 24th of February, is subsequently at three different times inoculated by other processes; two months after the last operation he remains free from the disease.

4th. December 31, 1879, inoculation of two rabbits by pricks, and of two sheep by intra-venous injection. Death of the rabbits by hydrophobia. Reinoculation by scarifications of the two sheep. State of health remains perfect December 9th, 1880.

5th. April 19th, 1880, inoculation of two rabbits by pricks, and of a sheep by intra-venous injection. Death of the rabbits by rabies April 30th and May 9th. Reinoculation of the sheep by pricks and hypodermic injections; health continues, and they are used for other experiments on the 29th of January, 1881.

6th. February 3, 1881, two sheep receive rabid virus, one by hypodermic, the other by intra-venous injection. The first dies mad on the 2d of March, the other resists and is reinoculated by pricks and scarifications on the 13th and 27th of March. On the 28th of July he is perfectly healthy.

7th. March 13, 1881, inoculation of a goat and three sheep. One of these resists pricks and dies mad April 22d. The two others and the goat inoculated by intra-venous injection are reinoculated by scarifications March 27th. July 28th finds them healthy, and they are again inoculated.

8th. February 19, 1881, five rabbits receive in their drinks a mixture of water and rabid saliva, very virulent. Three resist, and two die mad March 2d and 9th.

The following are the conclusions from these experiments:

1st. Injections of rabid virus in the veins of sheep do not develop the disease, and seem to give immunity.

2d. Rabies may be transmitted by the ingestion of rabid matter, and though we are yet ignorant of the locality where the inoculation takes place, it is not less demonstrated that there is

danger of contracting the disease for all persons or animals which, in whatever circumstances, might have introduced rabid virus in the digestive apparatus.

I am verifying the fact of the immunity by intra-venous injection by experiments on dogs, and am aiming to ascertain whether intra-venous injection of the virus done the next or the second day after a bite or a rabid inoculation may preserve from rabies. —*Archives Veterinaires.*

MEAT OF THE DOG FOR PUBLIC CONSUMPTION IN BELGIUM.

Having been requested to report upon the propriety of allowing the meat of dogs to be introduced for public consumption with that of cattle, horses, and other herbivorous animals, the Council of the Veterinary School of Belgium has come to the following conclusions :

1. There is no reason for preventing the sale of the meat of dogs for public use any more than that of any other ordinary butchers' meat.

2. It ought not to be exposed for sale unless it has been submitted to the inspection of an official veterinary inspector, the inspection to be made upon the living animal immediately before it is killed.

3. As part of this inspection, it is recommended that the meat must be rejected from consumption of (a) dogs in poor condition of flesh, and (b) dogs which present symptoms and lesions of disease of some seriousness, amongst which may be mentioned rabies, even when it is only the object of suspicion; rachitism, dropsy, distemper, suppurative tumors and those of malignant character, gastro-enteritis, hepatitis, peritonitis, any serious diseases of the lungs and pleura, etc.; that whether there is disease or not the œsophagus, stomach and gastro-intestinal organs be thrown away; that the meat be sold in a special market and labelled according to its kind; and to reject all meat of animals which have not died by jugulation (or bleeding) as certified by the veterinary surgeon.—*Annals of Brussels.*

COMPLETE OBLITERATION OF THE BLADDER IN A SIX-WEEKS-OLD CALF—CONDITION COMPATIBLE WITH HEALTH.BY M. LAPOTRE.

A young calf in good condition was slaughtered when six weeks old. This animal had always been very lively during its life, and had been exclusively fed on milk, which he drank with avidity. His owner says that the cutaneous transpiration was always very abundant, the hairs being always covered with a true dew of perspiration. The butcher, in dressing it, was surprised to find that the bladder presented anatomical characters which differed from any he had ever observed before. He removed it carefully, with the urethra and ureters, and sent it to me for examination.

The bladder has the form and volume of a goose egg. The external surface is slightly ecchymosed. On pressing it between the fingers, no fluid escapes through the urethra, though the organ seems filled with a matter without consistency. The canal of the urachus is absent. A longitudinal incision made on the superior plane of the bladder, about two centimetres from the neck, shows it to be filled with greyish pus quite thick and odorless, in the center of which float some quite thick masses, which seem of a sebaceous nature. The openings of the ureters are entirely obliterated by a little nodosity, indicating that no urine has at any time been poured into the bladder. There is no neck and there is no communication between the bladder and the urethra. The vesical mucous membrane, in a thickened state, almost fills the three openings of the organ, which represents, in this manner, a sort of vase hermetically closed. It is thus that in injecting water through the urethra it stops at the neck, which forms a true infundibulum of this canal. The ureters are larger in diameter than usual, and are hard and uncompressible under the fingers. Incised lengthwise, a reddish filamentous matter is found in them, which seems like clots of blood adherent to the mucous membrane. The kidneys offer nothing particular, though it is probable that their function must have ceased.—*Journal of Zootechnie.*

STRANGULATION OF THE SPERMATIC CORD, RESEMBLING STRANGULATED INGUINAL HERNIA IN THE HORSE.

BY H. NOCARD.

A colt eighteen months old had been sick since 2 o'clock in the morning. From the history of the case, he was supposed to be affected with strangulated hernia. He was first taken with violent colic, and continued ever since to suffer extreme pains, kicking, throwing himself on the ground, rolling and resting on his back, and constantly looking towards the left flank.

At the time of visit he is quieter. When loose, he assumes the complete decubitus on the right side, with the legs partly flexed; the face is contracted, the body covered with perspiration; the respiration accelerated and irregular, accompanied with low moaning; pulse small, quick and hard. The exploration of the testicular region reveals the following appearances: On the right side, the testicle is down and moveable, the cord flexible, painless and easily detected with the fingers; on the left side, on the contrary, the scrotum is retracted, the testicle drawn and fixed; the cord very voluminous, very painful, and impossible to unroll; rectal examination is impossible in the standing position, and in the dorsal it gives but imperfect results; the left inguinal ring seems dilated and wider than the right, and is filled with an abnormal mass, but it is impossible to find the two ends of the intestinal fold supposed to be passed through it. This was attributed to the difficulty of manipulation through the rectal walls, and the external local signs seeming sufficient to justify the diagnosis, the operation was proceeded with.

Nothing important appeared in the first steps of the operation. A longitudinal incision was made of the scrotum and dartos, with enucleation of the testicle, showing it covered with the parietal layer of the vaginal sheath; puncturing that covering and making a longitudinal incision with the directory, the opening of the sheath allows the flow of about one deciliter of very bloody serosity, and exposes—not the supposed ruptured intestine, which did not exist, but an enormous spermatic cord, of the size of the arm, gorged with blood, with venous cords and lymphatics, some

as large as the thumb, and others as the index finger ; presenting, in fact, all the signs of the most complete strangulation ; through the albuginious tissue, the testicle appears of a bluish color.

The spermatic cord so completely filled the ring that it was impossible to introduce the finger through it. This became easier on the puncture of the largest venous or lymphatic divisions, which allowed the escape of a large quantity of blood and lymph, followed by a diminution in the size of the cord, and allowing the introduction of the finger through the ring, which was found to be very small.

A clamp applied upon the covered cord, and the excision of the testicle, closed the operation, which ended successfully in the recovery of the patient.—*Archives Veterinaires*.

FRACTURE OF ALL THE SESAMOID BONES.

BY R. F. FROST, M.R.C.V.S., A.V.D., RANGOON, BURMAH.

On yesterday, the 3d of August, I received the following communication : “ I was driving one of my cousin’s ponies this morning, from the mill to the office, when he suddenly stopped, and I suspect with good reason, for, judging from the appearance of his off fore leg, I should say that his sinews had given way. The skin is not broken, but I suppose there is nothing to do but shoot him. Would you see him before this is done ? ”

I visited the pony at once, and found him in the following condition : The inferior extremity of the off fore metacarpal bone had protruded through the skin, and the animal was resting on the broken end of the bone, somewhat after the manner of a man standing on a wooden stump. The near fore fetlock had descended, and the pony was resting on it to a slight extent. Both hind fetlocks had descended in a like manner, but not to such an extent as the near fore.

On manipulating the joints I found considerable crepitus, which convinced me that fracture of the sesamoids had taken place in all the limbs.

The animal was destroyed at once.

History.—The pony was a “shan,” about sixteen years of age, and had been in his late owner’s possession for about eight years, during which time he had been remarkably free from lameness. Recently he had been doing very light work, as he was looked upon as an old friend. His only labor consisted in being driven to the bazaar, a distance of about three miles, every morning, in a light cart, by the owner’s butler. I have known the animal for more than three years, and the only occasion on which he required medical attention was about four months ago, when he was pricked in shoeing; but he soon recovered and was again driven to market, as usual, every day.

My first inquiry, on meeting the gentleman who drove him yesterday morning, was as to whether he had, in driving, struck the pony or caused him to make any sudden forward movement. But he assures me that he did nothing to frighten or excite him. He says he was trotting slowly along, and that for the first half of his journey the animal seemed free and anxious to go, but that after a while he thought he seemed lazy and inclined to slacken his speed. Soon afterwards the pony stopped altogether, and the driver, “thinking that something was wrong with a portion of the harness, or that a stone had got fixed in the foot,” ordered the syce to dismount and examine the harness and feet. On the syce reporting that all was right, the pony was again urged forward; but, from the peculiarity of the action, which now became a limp, the owner dismounted and found matters as stated in the first part of this paper.

A description of the morbid condition of the parts, examined twenty-four hours after death, may interest your readers, and in hopes that such may be the case I give the appearances of each limb separately.

Left front limb.—On removing the skin from the knee to the foot, I find considerable infiltration into the connective tissue, from a little below the knee to the coronet. This is owing to rupture of some of the small blood-vessels. On removing the areolar tissue, I find the perforatus tendon slightly lacerated in the immediate neighborhood of the joint.

The perforans tendon is almost completely lacerated at the

point where it glides over the sesamoids. On elevating the tendons, the joint is found open and the sesamoid bones broken into several pieces. Portions of the bones are adhering to the inferior extremity of the suspensory ligament, and other portions to the superior extremity of the inferior superficial sesamoid ligament. Both the inferior articular surface of the large metacarpal and the superior articular surface of the os suffraginis give indications of long-standing disease. Absorption of the articular cartilage has taken place to a considerable extent.

Right front limb.—To give anything like an accurate description of the state of this limb is quite out of the question, for the simple reason that the joint is little more than a mass of broken bones, lacerated tendons and ligaments. The main features to be noticed are fracture of the sesamoid bones into innumerable small pieces, rupture of the fibres of the suspensory ligaments, and both a longitudinal and a transverse fracture of the inferior extremity of the large metacarpal bone. The longitudinal fracture has taken place directly through the centre of the bone, and the transverse breakage is about two inches from the extremity.

Right hind limb.—There is considerable infiltration of blood into the areolar tissue around the joint. The tendons are in a normal state. There is a transverse fracture of each sesamoid, near to its base, and there is laceration of the fibres of the lower extremity of the suspensory ligament.

Left hind limb.—Presents exactly the same appearance as the right hind joint.

I have little more to add beyond the fact that the sesamoid bones in all four limbs seemed to have been in a diseased state for a considerable period previous to the accident. The bones, so far as one could judge by the naked eye, appeared to be spongy and brittle; and this, I have little doubt, was the case, considering the extent of the fractures, some of the bones having been broken into innumerable small pieces.

One is naturally puzzled to account for such extensive fractures as occurred in this case, more particularly as the causes in operation seem to be inadequate to produce such marked results. It seems almost incredible that an animal trotting gently along a

smooth road, with a light cart behind him, should suddenly give way in the manner described.

Had he been suddenly and violently urged forward, I could understand fracture occurring in one or both fore limbs, but I am quite at a loss to account for the fracture of all the sesamoid bones, and one large metacarpal bone at the same moment, unless it be allowed that very extensive disease of the bones existed previously.

If fragilitis can exist without an animal showing the least sign of lameness, or even stiffness, I can account for the fractures in this case. I have frequently seen the animal in question, both in harness and when being led out of the stall for my inspection, and never, except when he suffered from the prick of a nail, did he show any lameness.

About two years ago a case of fracture of the sesamoids of both fore limbs occurred in a pony five years old, when being galloped over the "maidan" (or plain) at this station. The ground was as smooth as a billiard-table, and there had been no previous disease, so far as I could tell. (I had carefully examined the pony a short time previously.) I must add that this pony had been taken over a few small fences a short time before the breakdown, and I have no doubt that it was while taking one of the jumps that the breakage occurred, though the broken pieces of bone did not separate immediately. It is frequently the case that displacement does not occur for a considerable time after the fracture has been caused. In this case the pony walked about on the ends of his cannon bones, with the lower portions of the limbs dangling about as if they did not belong to them.

Not quite a month ago a gentleman of this station was driving an old pony in a light cart. The animal had been the subject of repeated attacks of rheumatism, and as a consequence there was considerable thickening of the tissues around the fetlock joints. On the occasion in question the owner touched up the old animal rather smartly with the whip, and immediately afterwards the pony came to a standstill, and could not be induced to move further. I saw the animal soon afterwards, and found that the near hind fetlock was resting on the ground, but there was no crepitus.

I recommended that the animal be destroyed, and on making a post-mortem examination of the limb, I found both fracture of the sesamoids and rupture of the suspensory ligament.

Fracture of the sesamoid bones of the front limbs is not a rare occurrence in India, but I do not remember to have heard of a case in which the sesamoids of all four legs became involved at the same time.

Horses, when they are very fresh and succeed in breaking loose, are liable to injuries of this nature, especially if they jump fences when the ground is very hard; but I think few cases occur under similar circumstances to those narrated in this instance. The case of fracture mentioned as having happened to the five-year-old pony took place during the monsoon, when the ground was soft and elastic.—*Veterinary Journal*.

SERIOUS INJURY TO A HORSE: RECOVERY.

By C. CRESSWELL, M.R.C.V.S., Nottingham.

On April 25th a bay six-year-old cart mare, in good condition, belonging to W. Collison, Esq., of Nottingham, in galloping away broke down the closed gates of a railway crossing, and came in contact with a passing train going at the rate of about twenty-five miles an hour. On examination one hour afterwards, I found the following lesions: A transverse fracture of the frontal bones throughout their whole breadth, two inches of the orbital process of the left frontal bone being detached. The malar ridge on the left side was broken transversely in two distinct parts. The inferior portion of the orbit, comprising the lachrymal bone, portions of the superior maxillary, and the malar, was fractured in many places, and portions detached. The inferior maxillary was broken at the neck, two inches below the joint, and the jaw consequently movable in any direction. On taking away portions of the detached bone, the parietal was found to have a longitudinal fracture, causing a fissure one-eighth of an inch wide, through which the cerebral membranes were visible. The eye was of course invisible, and the jugular vein on the same side was

ruptured, with, however, but slight injury to the skin. Pulse 24; temperature 99°. Great dullness and general depression, and animal rapidly becoming semi-comatose. A prognosis of phrenitis and death, although turning out to be incorrect, was perhaps justifiable. Immediate treatment consisted in the administration of diffusible stimulents, mild dose of physic, thorough cleansing of wounds, with extraction of all loose pieces of bone. In four hours the pulse rose to 32, temperature 100°. Constant irrigation of the whole head with hot water was then had recourse to, with experimental doses of bromide of potassium, 3ij every four hours.

The following day, April 26th, and up to the seventh day, this course was steadily persevered in. The general effect seemed to be to keep the mare in a constant state of quietude. On the third day the temperature rose to 103°, but by the aid of two doses of sod. salicyl. this was at once reduced. The pulse invariably stood at 26 to 30 during these seven days. No inflammation of the brain occurred and the wound assumed a healthy suppurating character. The swelling, however, was very great. On the third day large portions of the frontal, and smaller portions of the inferior floor of the orbit were taken away. The frontal sinus was thus opened at the superior extremity, which opening admitted the entrance of three fingers. The temperature of the water used for irrigation *was gradually reduced*, until nothing but cold water was applied. After the seventh day the bromide was discontinued, and the pulse rose within thirty-six hours to 40, and temperature 100°. During the whole of the seven days the mare showed no inclination to drink anything, save about two pints a day of cold water. No gruel of any description could she be induced to drink; and of course eating was out of the question, on account of fracture of the jaw. She had administered to her, daily, from one to two pounds of finely chopped raw beef in the shape of balls. At the end of the seventh day she began slowly to take a little nourishment herself, in the form of thick oatmeal gruel, with chopped carrots; and gradually but surely she took different varieties of food, and in greater quantities. The meat balls were discontinued gradually. Cold water

irrigation, with varied dressings of acid carb., sol. arg. nit., sol. pot. permang., zinci chlorid. iodoform, effected a cure in five weeks from the date of accident. On May 12th the frontal sinus was trephined, on account of an accumulation of pus, and several bone sloughs, belonging to the superior maxillary, extracted.

The principal interest connected with this case I take to be is the beneficial action of bromide of potassium in such large doses. The injuries were so extensive that inflammation of the brain seemed almost a certainty, and to the beneficial action of pot. bromid. must the success of the case be attributed. Constant irrigation with water, gradually lowered as to temperature, had likewise, I think, a splendid effect. Another point of interest lay in the beautiful union that took place in the lower jaw.

After this practical experience, I think it may safely be stated now that a horse may easily be kept alive, and that, too, with very little trouble, on minced flesh. This mare for seven days had literally nothing but meat, and for the next week very little in addition. The details of the treatment of the wound as to surgery, syringing, etc., were such as recommended themselves from day to day, the only point of interest being the bursting of the temporal artery on the sixth day, which caused considerable danger at the time, but which was happily soon overcome. The mare has now been at regular work since June 7th.—*Veterinary Journal*.

AMERICAN VETERINARY COLLEGE HOSPITAL.

REPORTS OF CASES.

BY M. BUNKER, D.V.S., House Surgeon.

LACERATION OF THE RECTUM.

September 20th I was called to see a sick horse at a private stable in this city. When I got to the stable I found a bay gelding suffering apparently from spasmodic colic. The history of the case was as follows, viz.:

Monday afternoon, on his return from a drive in the park, did

not eat his supper; had done his work well and was not over-driven. About 4 a. m. Tuesday morning the coachman was awakened by hearing him pawing; came down to the stable, but as the horse did not seem to be very bad, went back to bed and did not see the horse again until six. At this time he was quite sick, being up and down; having nothing else to give him, gave some whiskey. Soon after, by direction of the owner, the coachman went in search of a man to do something for the horse. A man was found, and armed with a syringe proceeds to the stable and attempts to give an injection. The syringe was an old brass one, in the nozzle of which was a piece of leaky rubber tubing. Into this tubing was inserted a wooden tube about an inch in diameter and nine in length, terminating in a round blunt end. Several injections were given with this apparatus, which did not seem to relieve the animal any, but in fact the horse grew worse.

About 2 p. m. the coachman sent to the hospital for some one to come and see the horse, and on my arrival at the stable I found the horse, as I have previously mentioned, apparently suffering from a severe attack of spasmodic colic. On inquiry I found the horse had then been sick about ten hours, had been given injections, a dose of whiskey, and a dose of some other medicine.

The horse was in constant and excessive pain, would neither stand or lie still scarcely long enough to take the pulse, which was about 60 to 70, countenance very anxious, the respiration much accelerated, the body covered with profuse perspiration. I was in the act of inserting my hand to examine the condition of the fœces, if there were any in the rectum, when I observed a little blood flowing from the anus. The coachman told me that the horse had been bleeding like that for an hour or two.

I then inserted my hand in the rectum and found a considerable quantity of clotted and liquid blood—at least a large cupful. The horse made violent efforts to expel my hand at first, but after a short time I was enabled to examine the condition of the walls of the rectum. I found two spots where there were lacerations of the superior surface of the rectum to a considerable extent, and was well satisfied that the perforation was complete, but as

the horse was again straining, did not press my examination. A diagnosis of spasmodic colic, with laceration of the rectum from the maladministration of injections.

A very grave prognosis was given.

A six drachm dose of chloral was given, and orders to give two ounces of tincture opii. with one ounce of snl. ether in a couple of hours, if the horse did not remain quiet, were left with the coachman.

About seven o'clock I saw the horse again, and found him much quieter from the effects of the opiate, but there was still a slight discharge of blood from the anus. The administration of opium and ether through the night was directed, and the owner told that the horse would not recover.

He was seen again the next morning, when he was found almost pulseless, covered with cold perspiration, and a temperature of nearly 105° . The rectum was swollen to such an extent that the hand could not be introduced, nor was it desirable to do so. Word was left that the horse could live but a very short time, and a post mortem was requested. The animal lived about half an hour after he was seen. On being informed that he had been taken to the offal dock, I went there and made an examination.

I found on exposing the contents of the abdomen, that there was some peritonitis, with but little fluid; that the large intestine was somewhat inflamed; having removed the large intestine, the floor of the pelvis was cut through so as to expose the rectum, together with the small colon; a circular incision was made around the anus, and the rectum, together with a portion of the floating colon, was removed.

No fœces were found in either the rectum or in the small colon.

The internal surface of the rectum was intensely swollen and congested and the small colon to a lesser degree; but at the anterior extremity, at the termination of the floating colon and extending into that portion of the intestine, the rectum was completely perforated, except about an inch in the centre, and this portion was nearly torn through. The hand could be passed from the intestine to the outside with ease. The edges of the wound

were ragged, it was irregular in its direction, showing conclusively that it was done by some blunt-pointed instrument, which in this case was the wooden nozzle to the syringe.

VESICAL CALCULUS—URETHRO-LITHOTOMY.

A bay gelding, about seven years old, fourteen hands high, was brought to the hospital September 2, 1881, with the following history: The owner had noticed that the horse for the previous two or three months would make frequent and ineffectual attempts to urinate; sometimes he would pass a small quantity and with a gush, followed by a good deal of straining. The urine was said to be high colored. A diagnosis of probable calculus in the bladder was made, and if such was the case an operation was advised.

When the animal was brought to the hospital he was placed in a stall and very soon made an effort to pass his urine. He passed but a small quantity at one gush; this was collected in a vessel and found to be very dark and bloody. The animal strained considerably after passing this urine.

On rectal examination the bladder was found to be nearly empty of urine, but a hard round body could be felt in it.

The diagnosis being thus confirmed, the operation of lithotomy was advised.

On September 7, the consent of the owner having been obtained, the horse was prepared for operation. Since September 2, the horse had been kept on low diet and mucilaginous drinks in the shape of flaxseed gruel and tea. About an hour previous to the operation five drachms of chloral hydrate were given to the animal.

The animal being secured in standing position the urethra was injected with tepid water, and thus dilated, a longitudinal incision was made through the perineum about an inch in length into the urethra just above the ischial arch. As soon as the knife penetrated the urethra a small stream of water burst forth, thus serving as a guide to the operator as to the depth of his incision, and preventing injury to the parts from cutting too deeply.

A pair of small parturition forceps was used, and being introduced into the incision in the bladder, and the hand of the operator being put into the rectum, the calculus was grasped and after some little manipulation was drawn out.

The bladder was then carefully washed out with tepid water and carbolic solution and a low diet with mucilaginous drinks was prescribed, the incision to be washed two or three times daily.

September 8. Wound looks well; a little clotted blood on the inside of urethra; the urine is voided from both the incision and the penis. A simple washing with carbolized water, with a little oil rubbed on the inside of the thighs to prevent irritation from the urine. There were no signs of reacting fever, the temperature being only three-eighths of a degree above normal.

September 9. No fever, very little discharge; very little inflammation of the parts. The same treatment was followed. The horse was now given his usual allowance of oats and hay, but the flaxseed tea was kept up.

September 10. General condition the same, the wound granulating nicely and from this date until the 16th, when he was sent home, the wound was kept clean, the edge slightly cauterized with nitrate of silver pencil and slight exercise given.

On the 16th the horse was sent to his owner's residence in Elizabeth, N. J., with directions simply to keep the wound clean. The animal might have been sent home some days sooner, but the owner preferred that he should stay until all danger from complications were past.

Since he left the hospital nothing has been heard from the case, so that it is safe to say that the recovery is complete.

The calculus on examination proved to be an ordinary mulberry calculus, and weighed six drachms.

COMMUNUTED FRACTURE OF THE PELVIS.

To answer a call left at the Hospital to attend a horse that had had a fall and was unable to get up, I went to a stable in West Eighteenth street, in New York, and found a bay mare with the following history: When the stableman went to back the

animal out of the stall, which is some six inches above the floor, she made a misstep and knuckled over on her nigh hind foot; then in her attempt to regain her feet she slipped, and then in trying it again she slipped a third time, spreading her legs apart, and was unable to get up. She was dragged into her stall, where she soon became covered with a profuse perspiration and was in much pain.

When she was seen she was suffering intensely, and on manipulation of the near hind leg an excess of motion was found at the superior extremity of the thigh, but owing to the mass of muscles crepitation was imperfectly detected. A diagnosis of fracture of the superior part of the leg was made, and the animal ordered destroyed. She died, however, before it was done. Post mortem examination revealed a comminuted fracture of the pelvis in the left side. The neck of the ilium was transversely fractured, the external border of the obturator foramen broken off, the cotyloid cavity shattered into pieces of various sizes, and in fact there was a complete smash of all the pelvic bones.

The examination also revealed that both the articular head of the femur and the surface of the acetabulum were affected with extensive ulcerations, the articular cartilage on both being destroyed in three different places. Will not this diseased condition of the bones explain, or at least furnish a practical explanation for such a complete shattering of the bone, and especially when occurring in such a young animal, the mare being only seven?

CARTILAGINOUS QUITTOR—REMOVAL OF THE LATERAL CARTILAGE.

In reporting this case for the REVIEW I do so not because it is an unusual case to come under the veterinary surgeon's care. In fact it is a complication very often met with in city practice, and is not generally looked upon as being very desirable to have in charge, but because I wish to place before the readers of the REVIEW the description of an operation which is not generally performed by the American practitioner and in fact is comparatively seldom if ever performed by English practitioners in the United States. Another point to which I wish to call attention, is the brief

period intervening from his admission to the hospital to when he was sent home to resume work.

September 9. A sorrel gelding belonging to a physician of this city, was brought to the hospital for treatment. The horse had for over six months a cartilaginous quittor on the near front foot, on the inside quarter, which was very much swollen and enlarged. Upon the surface of this swelling and above the coronary band were two fistulous openings, into which the probe could be introduced to various depths. These tracks were connected with each other, as injections into one would return through the other.

The only treatment deemed advisable in this case was the removal of the diseased cartilage; and the consent of the owner having been obtained, the horse was prepared for operation by having the diseased foot placed in water for a day or two, so as to soften the hoof.

This having been done the inside quarter was pared down so as to facilitate the operation.

The horse was thrown on his left side, the near fore foot taken from the hobble and secured upon the outside of the off metatarsal region.

A knife was then inserted beneath the coronary band, and care being taken to preserve this, a free incision was made. The portion of skin covering the diseased cartilage was then freed from its attachment. The cartilage was then removed with the left sage knife, care being taken that every particle of that structure was removed.

There is one danger in this simple operation, which must be kept in mind, and that is the danger of injuring the articulation.

The cavity left by the removal of the cartilage was dressed with oakum saturated with carbolic solution and secured by a band on the outside. The horse on being allowed to rise showed very little lameness and stood on his feet with but little pain.

September 14 was the day the operation was performed, and the dressing was allowed to remain on until the 17th, as the animal did not show lameness or pain.

September 17. Wound looks healthy. One or two little pieces of tissue removed. Same dressing.

September 19. Wound looks well. Same dressing. The wound was dressed every other day until September 27, when the shoe, which had been removed, was replaced by a plain shoe, with the inside quarter a little shorter than the outside.

The wound has filled up gradually with even healthy granulations, and any tendency to the formation of false quarter is checked by paring the secreted horn.

The animal is dressed as before, and on October 17 is shod with a bar shoe, the inside quarter pared off, so as to relieve the pressure. The wound has entirely closed up and presents now only a granulating surface half the size of a silver five cent piece.

October 19. The horse is sent home with a simple bandage on the foot, with directions to the doctor to put him at slow work and send him to be dressed in a week.

October 22. Animal brought back to be dressed. Is not lame, and wound entirely healed. The horse resumes his work after 35 days.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College Tuesday evening, Oct. 11th, 1881, with President Dr. Burden in the chair.

The minutes of the previous meeting were read and adopted.

Dr. W. J. Coates read a paper on the pathology, causes, symptoms and differential diagnosis of acute catarrhal bronchitis, on which quite a lively discussion ensued, especially in regard to the use of percussion and auscultation, as to which was the better in detecting atelectasis of the lungs from localized pneumonia as a complication, also on the value of the thermometer when the physical signs give negative results; then a discussion arose as to whether it was proper to apply the term expectoration to the discharges which were expelled from the air passages, and if there is ever a discharge into the mouth from larynx in inflammations. A vote

of thanks was extended to the essayist for his contribution to the interest of the meeting.

M. Bunker, D.V.S., was admitted a member, and the names of F. H. Parson, D.V.S., and R. H. Harrison, D.V.S., was proposed for membership. In absence of the committee of membership on W. T. Carmody, M.R.C.V.S., the name was laid on the table until next meeting.

A communication was read from J. M. Heard, M.R.C.V.S., tendering his resignation as a member, on account of his inability to attend the meetings, with his best wishes for the success of the society. His name was balloted on and resignation accepted.

It was moved and seconded that a synopsis of the minutes of the meetings be hereafter sent to the editor of the *AMERICAN VETERINARY REVIEW* for publication. Carried.

The President appointed Dr. R. A. McLean to read a paper at the next meeting, he to notify the Secretary of the subject.

W. J. COATES, *Secretary*.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

The annual meeting of this Association was held in the lecture room of the Veterinary College, Union avenue, on Thursday evening last, Mr. C. J. Alloway, V.S., President, in the chair. As this was the first meeting of the season, the retiring President delivered an address reviewing the work of last winter. The financial statement was read, showing a balance in favor of the Association. The Librarian's report showed about 400 volumes in the library, all the latest works having been added. The election of officers for the ensuing winter was then held, with the following result: President, Jas. Bell, M.D.; 1st Vice-President, M. C. Baker, V.S.; 2d Vice-President, Wm. McEachran, M.D., V.S.; Secretary-Treasurer, Mr. Fred. Torrance; Librarian, Mr. J. A. Chandler.

The following gentlemen were proposed as members of the Association: Henry C. Kingman, W. P. Robbins, J. E. Gardner, W. H. Clock, E. P. Ball, George Remucks and J. A. Bishop.

At the next meeting Dr. Osler will deliver an account of his

recent visit to the British National Veterinary Congress, as a representative of this Association, and Principal McEachan will read a paper on the disease which has prevailed among cattle in the county of Pictou, Nova Scotia, for the last thirty years, and which is now under investigation.

NOTICE.

HILL'S BOVINE PATHOLOGY AND SURGERY.

The publication of Prof. Hill's new work, "Bovine Pathology and Surgery," has been somewhat delayed by a difficulty about the colored plates which will illustrate the work; but the difficulty has been overcome, and the book will soon be ready.

Mr. Fleming is actively engaged upon his new work, and between two and three hundred illustrations are already prepared for the text.

CORRESPONDENCE.

HARTFORD, CONN., October 18, 1881.

Editor American Veterinary Review:

In the last number of the REVIEW I noticed reports of cases in which the trocar and canula were used for relief of tympanitis occurring in the horse.

To the best of my knowledge this operation has been done very rarely except by the French. While in England I saw the operation done once only, and Williams, in his Surgery, contents himself with writing in regard to it that it may be of use in some cases, but that it has not been so in his hands in any case.

In this country it is not, I think, generally regarded as a safe operation.

I have performed the operation once only, and with relief so marked and immediate that I must have the evidence of other cases before deciding finally that to the operation alone was due the very satisfactory result witnessed.

The history of my case is not of interest, as the case presented nothing unusual to a case of severe tympanitic colic. I saw the case late and operated at once.

I cannot but think that, in cases where the tympany is extreme, this operation is a most valuable remedy, and it seems to me that inquiry into its merits would result in its general use.

Will the editor kindly give the teaching of the American Veterinary College regarding this matter.

F. E. RICE.

[The operation of puncture of the cœcum in cases of tympanitis is one which is recommended in the treatment of this disease by, we believe, every veterinary member of the faculty of the American Veterinary College. From the statistics obtained from the book of Records of Clinics and Hospital Patients, about 83 cases of flatulent colics have been punctured; all have been relieved; none have died; two presented some little complication such as abscess and fistula, on the place of puncture. We place a great deal of confidence in the operation, and, though we would not consider all cases as of necessity to be operated upon, we believe that many animals owe their lives and saving of much suffering to this timely and judicious surgical interference.—ED.]

OBITUARY.

DR. C. H. HERTWIG.

The Veterinary School of Berlin has recently lost one of its old professors; and scarcely is the grave of Director Hering closed than the veterinary profession has to regret the loss of another veteran from among its members.

Dr. C. H. Hertwig died in July last, after having filled the professorship at the Berlin school for more than fifty years. German veterinary literature is rich in numerous works due to his pen.

NEWS AND SUNDRIES.

VACCINATION IN CHINA.—In China persons are vaccinated on the nose, and not on the leg or arm, as in other countries.

CATTLE SUPPLY.—The cattle supply of southwest Texas is nearly exhausted, and the northern markets must look elsewhere for beeves.—*Farm Journal*.

CANADIAN EXPORTATION.—Since the first of January there have been shipped from Montreal 37,612 live cattle and 53,322 live sheep.—*American Cultivator*.

AMERICAN HOGS.—The hog products of last year in the United States aggregated 33,000,000, of which number 7,000,000 were handled at the Union Stock Yards, Chicago.—*Prairie Farmer*.

SHEEP IN GREAT BRITAIN.—Sheep farming in Great Britain is declining, the number of sheep in England and Scotland having fallen off over 12 per cent. during the last two years.—*Massachusetts Ploughman*.

ANTHRAX IN NEBRASKA.—It is reported that anthrax has broken out among the cattle near Lincoln, Neb. Vaccination is being tried as a preventive of the spread of the disease.—*Country Gentleman*.

TEXAS FEVER IN IOWA.—Messrs. Kimball & Barns, Lamoille, Iowa, write us that Texas fever has broken out near that place, communicated by a lot of Texas cattle that were herded there. The mortality had been considerable up to latest accounts.—*Nat. Live Stock Journal*.

PLEURO-PNEUMONIA IN MARYLAND.—We regret to learn of the appearance in some quarters of the State of this fatal disease among cattle. The law enacted for its extinction has been carried out in such a manner as to be of little or no effect.—*American Farmer*.

A LARGE COW.—Probably the largest cow in the world is owned by Martin C. Stokes of Grayville, White Co., Ill. She is seven years old and weighs 3,000 pounds; $17\frac{1}{2}$ hands high, $10\frac{1}{2}$ feet long from end of the nose to the buttock, $17\frac{1}{2}$ from the nose

to the end of the tail, 8 feet 9 inches around the girth, 26 inches around the forearm, and 31 inches across the hips.—*American Cultivator*.

THE TYPHOID FEVER GERM.—Klebs, of Prague, reports that a certain microscopic object has been discovered by him infesting the mucous membrane of intestines of typhoid patients. It does not occur in that situation in any other disease, so far as known. *Proceedings of Kings County Medical Society*.

PLEURO-PNEUMONIA AGAIN.—Contagious pleuro-pneumonia has again obtained a foothold in Montgomery Co., Penn. In Jos. S. Andrew's herd of nineteen head two have been killed and two are sick at present. It is thought to have its origin from cattle coming from Maryland. The State authorities have the premises in charge.

NO TRACE OF PLEURO-PNEUMONIA IN THE WEST.—The most rigid examination set on foot by the Treasury Cattle Commission, at the great western centres of the trade, have so far failed to disclose the presence of any trace of pleuro-pneumonia, and have only confirmed the members of the Commission in the opinion that this disease has not crossed the Alleghanies. The investigation will be continued, however, in a quiet and unostentatious way, for some months to come, for the Commission have fully determined to take nothing for granted in a matter of such vital importance.—*National Live Stock Journal*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—*Veterinarian*, *Veterinary Journal*, *Clinica Veterinaria*, *Revue fur Thierheilkunde und Thierzucht*, *Archives Veterinaires*, *Revue d'Hygiene*, *Recueil de Medecine Veterinaire*, *Gazette Medicale*, *Presse Veterinaire*, *Annales de Belgique*, *Journal Dosimetrique*, *Journal de Zootechnie*.

HOME.—*Country Gentlemen*, *American Cultivator*, *Medical Review*, *Medical and Surgical Reporter*, *Turf, Field and Farm*, *American Agriculturist*, *Prairie Farmer*, *Ohio Farmer*, *National Live Stock Journal*, *Bulletins of the National Board of Health*, *Medical Record*.

JOURNALS.—*Journal of Materia Medica*, *Home Farmer*, *Minnesota Farmer*, *Iowa Farmer*, *Journal of Agriculture*, (*Montreal*) *Rochester Herald*, &c.

PAMPLETS.—*Traitment Dosimetrique de la Diphtherie*, *Veterinair Kalender*, von Alois Koch.

CORRESPONDENCE.—J. C. Myers, Jr., A. A. Holcombe, R. D. Eaton, M. Bunker, C. B. Michener, F. E. Rice, J. D. Hopkins.

AMERICAN VETERINARY REVIEW,

DECEMBER, 1881.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 328.)

SANDCRACKS.

Seime of the French; *Hornspalt* of the Germans; *Fissura* of the Italians—are fissures or solutions of continuity observed on the walls of the foot, ordinarily very narrow, which follow the direction of the horn. Principally observed on the hoof of solid-peds, it has been seen also in ruminants, but rarely, and of little importance.

I. *Division*.—They may exist on every part of the wall. On the median line of the nail they are called *toe-crack*, and then are more frequent on the hind feet. They are rarely found on the outside or inside toe (the *mamelles* of the French), but commonly met with on the quarter (*quarter-cracks*), then situated on the lateral parts of the wall, towards the heels, and more frequently on the fore feet, especially on the inside. They are sometimes oblique, relatively to the thickness of the wall. Cracks

are superficial or deep, according to the thickness of the wall involved. They are *complete* when they extend from the coronary band down to the plantar border; *incomplete* when more limited. In this last case, those which do not extend up to the skin are the more disposed to recovery, and will grow down with the growth of the wall, while those which extend to the coronary band are more serious, being continually aggravated as the growth of the hoof progresses. According to the date of their formation, they are called *recent* and *old*. *Simple* cracks are those which only involve the wall; they are *complicated* where there is a more or less serious lesion of the tissues beneath, such as inflammation of the laminæ, hemorrhage, or caries of the bone. A serious complication is that of keraphylocele.

II. *Symptoms*.—Often the solution of continuity is the only one observed, and it is the special characteristic of the disease. But the fissure may be masked, either accidentally or by design. It may be concealed by the hairs; by the mud; or covered by hoof-ointment, tar, wax, or even a putty of gutta-percha. Concealed internal cracks have sometimes been discovered, such as fissures involving the internal face of the wall, which, consequently, were not noticed from the outside, or showing but a slight depression on the surface of the wall. These cracks are only discoverable when the foot has been well pared down. As slight as the solution of continuity may be, it participates in the motion of dilatation of the foot, and is better detected when the foot is raised than when it rests on the ground. This is the case when it is a toe-crack, but on the contrary, the quarter-crack is more open when the animal rests its weight on the leg; in which case, the separation of the borders of the cracks may be from two to four millimetres, and may expose the bottom of the fissure. Ordinarily, cracks appear first at the coronet, and there is then but a slight opening, but as they become older, and grow down, they have a tendency to become deeper and more complete. When of old standing, their borders are rough and scaly, having between them an ulcerated tissue and sometimes a fungus growth, from which escapes a sanious fluid. In other cases, as of quarter-crack, the edges have a tendency to cover each other.

Superficial cracks are not always attended with lameness; it is, on the contrary, often very severe when they are deep. The pain is generally in proportion to the depth and the degree of opening of the fissure, and also especially to any complications which may exist in the tissues beneath. The lameness seems at times to be due to the injury of the deep, soft tissues, and to be caused by the motions of the horny box when they become pinched, irritated and bruised. The affected animals are especially lame when the foot rests on the ground, and the lameness is greater on a hard than on a soft surface. If an animal suffering with toe-cracks is moved on descending ground, the lameness is greater than on ascending a hill, the weight of the toe in the latter case producing less opening of the edges of the solution of continuity. In quarter-cracks, the severity of the lameness is always in proportion to the rapidity of the gait; many horses which are but slightly lame on a jog, become much more so when the gait is accelerated, the dilatation of the heels being greater, and the separation of the borders of the crack increasing in proportion to the speed. When there is lameness, there is naturally an increase of heat and sensibility of the foot, especially at the seat of the crack. This is often discovered by feeling with the hand; old cracks are generally accompanied by a thickening existing at a corresponding point of the hoof. A deep, but recent crack, is apt to be accompanied with hemorrhage; there is blood which sometimes exudes between the borders of the crack, and flows in abundance when the movement is rapid; an old crack, in similar circumstances, may show pus, sometimes mixed with blood. A misstep, a sprain, may give rise to hemorrhage in cracks which are ordinarily dry. In toe-crack, the solution generally involves the thickness of the wall, through which it runs in a line almost parrallel to the median plane of the body, while in quarter-crack it is often oblique and irregular, not exactly following the direction of the fibres, but following the thickness of the wall obliquely, in such a way that the external solution of continuity is more posterior than the internal. If the crack is rather old, and the foot where it exists is contracted, it is generally incurvated, one border covering the other, and sometimes they seem to be

moulded on each other so as to cover and conceal the true crack.

III. *Complications*.—Amongst these we may first mention the inflammation of the reticular tissue, which is first pinched and injured. This may be followed by suppuration and local gangrene. Very often the disease is followed by necrosis of the os pedis, and caries of varying depth. In toe-crack, cases have been seen of caries of the tendon of the anterior extensor of the phalanges, and even arthritis, though rarely occurring, has been observed. In quarter-crack, one may have cartilaginous quittor and suppurative corns. As before stated, these lesions are indicated by the severity of the lameness, the presence of the blood or pus through the crack, and the extreme sensibility of the part. It is especially when, in the course of treatment, a part of the hoof has been removed, that the keratogenous apparatus has been exposed, that the abnormal coloration of the podophyllous tissue is seen, in its swollen condition and its sensibility to pressure, accompanied with the presence of the pus or sanious discharge, and at times the necrosis of the bone. Sometimes, also, foreign substances, as dirt or gravel, may be found introduced in the cracks, and acting as causes of irritation to the sensitive tissues below.

A complication, not so frequent, however, according to some authors, is that known as *Keraphyllocele*, and which consists in an hypersecretion of horn, from the coronary band on the inside of the crack. Sometimes the horny growth remains separate from the borders of the crack, and is adherent to the wall only by its base, towards the coronary band; this is especially the case when the wall has been thinned down or partly removed. In other cases it is adherent to the two borders of the crack, and this forms a natural cicatrix. This horny column of varying length and strength, according to its age, presses upon the tissues beneath, and gives rise to severe lameness. With time there is corresponding atrophy of the podophyllous tissue, or even of the os pedis. This is often followed by a marked deformity of the hoof, and especially a deep fissure, parallel to the direction of the crack. The soft tissues under the keraphyllocele often, in time, become harder, in consequence of the disappearance of the papillæ; the hoof then is no longer adherent to the tissues

beneath, and so incurable cracks are the result. A double wall or false quitter have often also been observed. Thus deformed, the foot is always subject to lameness, even if the crack is cured. Contraction or atrophy of the frog have been observed with quarter-crack.

IV. *Progress, Duration, Termination.*—Ordinarily cracks once existing become worse. From being superficial and imperfect they become deep and complete as a natural result of the ordinary motions of the foot. If rest and some hygienic attention can be given, they may recover spontaneously, and disappear by the natural downward growth of the hoof. This fortunate termination, however, is principally obtained when the crack is due to accidental causes, without deformity of the foot.

V. *Prognosis.*—Simple cracks, superficial and incomplete, especially arising from the plantar border, almost always recover under rational treatment, which has for its principal aim the prevention of increase in the size of the fissure. Cracks starting from the coronary band are always of a more serious nature, with a tendency to increase easily. Still they are no longer to be considered incurable. Cracks in which the borders are much separated by the motion of walking; those which are oblique; those whose edges are incurvated inwards; those where a portion of the wall is loose; those which bleed, and those where there is a continued irritation of the sub-horny tissues, are the most serious, so much so that they may require quite serious surgical interference, and after all baffle the best skill of the operator.

VI. *Etiology.*—The causes of cracks vary greatly, and are often multiple in a single case. Seldom the result of accident, they are most commonly the combined effect of both a predisposing and an extraneous cause. A frequent one among others is the relative dryness of the hoof, which then become excessively brittle. We have seen the conditions in which the hoof loses its natural flexibility, and shall here only state that alternate changes from dampness to dryness have as much influence as the dryness alone. Cracks are more frequent in animals working along damp than in those pulling in dry and stony roads. They are common in animals which, after being kept in pastures, are

placed in good paved stables, with dry bedding. It is principally in these conditions we find the quarter-crack. During some seasons, while a term of dryness follows continued wet weather, the conditions are favorable to their formation, and they often assume an epizootic form. Emigration to dry climates is a frequent cause, by producing the contraction of the ungual structure. This last circumstance explains why cracks are more common in army horses, which are called to go on long journeys during the warm days of summer. But if the European horse taken to Africa suffers less from the disease, a similar result occurs in the African horse when brought to our climate. The Arabian horse readily contracts quarter-cracks in our stables, and with our shoeing. Animals with small feet, or with hard and thick hoofs, have a natural predisposition, which is also found in Hungarian, Russian or Tartar animals. Feet excessively large are also easily affected with the disease, especially those which have canker or grease.

Unskilful shoeing may predispose to cracks, and this is principally the case if the wall is thinned or rasped down too much; the same result is obtained from shoes which are too wide or too heavy, or which are kept on by too heavy nails.

Feet with the toes turned outwards are predisposed to it, as in these the weight of the body rests more on the internal quarter, which being thinner than the external, give way the easiest. Contracted feet are subject to it. Quittor, suppurative corns, and some other diseases are also predisposing causes. Among occasional or accidental causes may be mentioned traumatism, contusions of the foot, and blows during work. The service of heavy trucking for heavy horses exposes the hind feet to toe-crack, especially if the pulling is done in going up hill or on slippery pavements; mules' feet are very subject to it, and heavy falls in jumping and external blows are occasional causes.

Heridity in cracks has been mentioned. We do not admit this except so far as it belongs among the predisposing causes which may be transmitted, and we should object to an animal for breeding purposes, if, though otherwise well formed, he were affected with cracked feet.

(*To be Continued.*)

RESUMED STUDY IN ANTHRAX.

CONSIDERED FROM THE POINT OF VIEW OF SANITARY POLICE.

BY PROF. DESSART.

(Continued from page 279.)

IV.—ETIOLOGY.

Anthrax is a disease generally enzootic, produced by a local factor, to-day perfectly known. This (*bacteridie* of Davaine) lives in a cryptogamic state upon certain plants of fodder which grow in the localities where the disease exists, or is found on the ground in the state of germ. In this last case, the germs, as well as the *mucedinæ* accidentally on the ground, are, on account of their very small size, transported to a certain distance by currents of air upon plants. Rain-water, especially in poor, permeable under-soil, may also carry off these mycrophites with the mud that they cart along, and then go and contaminate neighboring pastures. These germs arise from two prolific forces, the normal sporulation of the *mucedinæ*, and the endogenesis which is accomplished amongst the bacteridian segments in the animal economy after the multiplication of the batonnets by fissiparity.

The cadavers of carbuncular animals, in breaking up, set free the numerous microbes to which they have given temporary shelter.

These microscopic organisms are then only in the state of germ-corpuscles. That is, that the medium in a state of putrefaction, in which they are situated, does not allow them to grow, on account of the penury of oxygen, while the microbes in the state of batonnets are destroyed by the influence of this same medium, or rather, asphyxiated by the excess of carbonic acid which it contains. But these germ-corpuscles possess a great vital resistance. They are afterwards left on the place where the cadaver has undergone disaggregation, or are buried with it, or carried off by rain-waters over surrounding grounds, or at last removed by the winds to other parts more or less distant. Where they are inhumed with the cadaver, a great quantity of them, after a

certain time, return to the surface. This return is rendered possible by several circumstances, such as the visits of animals, which dig the ground which is used for burying; the running of water; the ascending force of underground gases; and, lastly, the intervention of earth-worms, which, by feeding upon carbonaceous cadavers, swallow at the same time a great number of germs which resist digestion. They are found intact in the earthy residues which fill the intestines of these worms, and they are thrown off with the dejections. This fact was proved by M. Pasteur. It shows evidently that the earth-worms are the true *carriers* of anthrax.

However, pastures and fodders, as well as waters which wash them off, being thus contaminated by the mycrophites and their germs, these small organisms are taken in with the food and drink, or inhaled with the air where they are suspended. These microbes are in this way *inoculated*, that is, introduced into the circulation through solutions of continuity of the internal tegument. We have already shown by what circumstances these solutions of continuity principally take place.

Such is the etiology of anthrax in the majority of cases. It clearly indicates what medical policy must be established against that disease. But it is also necessary, with this in view, to consider that anthrax may also be transmitted through other means besides those actually exposed. The manure of diseased animals may also infect pastures upon which it is thrown. The presence of the bacteridian micrococci unaltered by digestive fluids, has recently been demonstrated in the droppings of infected animals.

Healthy animals, with sores on the skin, may evidently contract the disease through their *contact* with diseased subjects or with any objects or substances soiled with bloody saliva, dejections, or other matters coming from diseased individuals or their cadavers.

But can contagion from a *distance* take place? Most authors, even amongst those whose writings are more recent, admit the possibility of this mode of contagion. It is denied only by a few. At any rate, microbiotic nature of anthrax is not a sufficient reason to discard that possibility. It, then, would be imprudent

to ignore entirely the virulent action at a distance, though it is rare and its radius of power very limited. In the point of view of medical police, it imports little that the fault be of a physical, chemical or biological order. Its possibility alone is sufficient to insure its consideration.

V.—MEDICAL POLICE.

The true prophylaxy of anthrax consists in the improvement of the soil of the countries where the disease exists; of the *carbuncular districts* of Roll.; also in the ameliorations of the cultures which are placed in them. By draining and the free use of lime, these soils are rendered first, unfavorable media to their conservation, and improved moreover for the growth of plants upon which the mucedinæ live.

In the carbuncular districts, inoculation by the mode of Professor Toussaint, ought to be strongly recommended,* if, however, it realizes in practice the results obtained in the laboratory.

The proper method of preventing the spreading of the disease and the multiplication of the germs are: quarantine; slaughter of the sick animals; destruction of the cadavers and beddings and disinfection of places frequented or occupied by contaminated animals. Let us glance at each of these.

Quarantine.—The sequestration must be enforced. The sick must literally be kept in confinement and isolation.

If it is a flock of sheep, out of which several are already affected, the others must be severely separated. An excellent practice in this case, when possible, is to remove the healthy to another pasture, or better, to have them *emigrate*. These measures are often sufficient to check the appearance of new cases.

Slaughter.—The royal decree of 1854 gave an indemnity for animals killed because of anything, when the slaughter was found necessary. Another decree of 1868 removed this indemnity. Was it proper? The question can be discussed. It is evident

* This learned professor has inoculated sheep with fibrinated carbunculous blood, exposed to a temperature of 55° C. By this means he has given immunity to animals against that disease.

that it is better in all points of view to see the living* or dead carbunculous animals disappear *as quickly as possible*.

It is evident that the object in view would be best secured by encouraging by indemnity, or other means, the owners of diseased animals to have them destroyed *at once*. It would be wise, in our view, in the same sense, to go farther, as is done in case of typhus; and this in consequence of various considerations, many of which escape the comprehension of sanitary police so-called.

However, we may ask if there is reason in demanding the obligatory (forced) slaughter in case of contaminated animals? Evidently, no. Forced slaughter, applied as a means to prevent the transmission of anthrax from diseased to healthy animals, cannot be justified. That isolation, with other complementary measures, may be sufficient for this, is rendered more probable by the fact that the disease kills usually in so short a time.

Forced slaughter is a measure exceptionally serious, which touches the owners of animals in their interests, as well as their rights. Such a measure, always odious when it is unnecessary, can be justified only when the disease, against which it is directed, places in imminent danger the agricultural wealth of a country, or invades the public safety.† Anthrax is not included in these conditions.

Destruction of the Cadavers and Bedding.—From the etiology of anthrax, well established to-day, it is proved that there is almost only one mode of efficacious destruction of carbuncular cadavers; this is by fire. The use of concentrated mineral acids leave usually, parts which are untouched. Too large quantities would be required for complete success. They might be employed, however, if the cadavers were in close proximity to

* We are justified in concluding from Toussaint's experiments that the sporulation or endogenesis exterior to the segmentation of the batonnets, that is to say, the production of the germ-corpuscles, takes place in the living animal economy within eighteen hours, at least, after the entrance of the leptothrix into the circulation. It is then of great utility to slaughter the patients as quickly as possible, in order to prevent the formation of those germ-corpuscles, whose life possesses such a powerful resistance. We have seen how in the state of mycelium the microbe dies easily under the influence of ordinary causes.

† Such as typhus or hydrophobia.

a factory of chemical products. They might then be at once transported in the recipients of those establishments.

Several kinds of furnace have been invented for that purpose—but we must acknowledge that satisfactory apparatuses to meet the demand are yet to be found, and in consequence one must be satisfied with the *burying*, the method now in use, and which we would recommend with the following conditions :

1st. The depth of the fossæ ought to be three meters, and in all cases one metre beyond the layer of humus, so that the cadaver should rest on a soil little or not at all frequented by earth-worms.

2d. The cadavers should be covered with lime, salt, or other substance capable of destroying or dispersing the worms ; then spread over the first layer of ground a thick coat of lime, mixed with ashes, gravel and cinders, so as to form a kind of bed which would isolate the cadaver and prevent the return to the surface of the ground of the carbunculous germs or of the lumbricoids carrying them.

3d. Pack earth over this bed in sufficient quantity to leave the whole, when filled, higher than the level of the ground—as an indication of the burying having taken place there.

4th. Forbid, under severe punishment, the opening of such places afterwards for at least six years.

5th. If, as is desirable, the towns of carbunculous districts were to establish a special spot for such burying, this ground is not to be cultivated. The grass growing over it could not be utilized ; it should be burned every year on the land. This spot ought to be protected by fences, and cattle not allowed to come in it. A sign board should indicate its use.

Cadavers ought to be transported to the burying-ground in vehicles with tight bottoms. Dragging them over the bare ground exposes the whole trail over which they pass to contamination.

The bedding, as well as the stercorations, droppings or other dejections, ought to be burned, as well as the floor or ground of the stable. Burning of dry branches of trees answers the purpose.

Desinfection.—This must be applied to the localities occupied or frequented by diseased animals, as well as for any other objects likely to be contaminated. If the locality allows, without

danger, the burning of very dry straw or hay is very advantageous, the place having been at first well cleaned and broomed, the dirt removed outside to be destroyed as before described.

These operations carried on, fumigations of chlorine or sulphurous acid are indicated, followed, the next day, by carbolized white-washing. The mangers, hay-racks, tools for cleaning, etc., are thoroughly washed and boiled in phenic water.

We do not believe it to be useful to disinfect the urine, unless in tanks. In the majority of establishments the urine is received in large common pipes, or remains mixed with the manure until this is ready for use in the field. In this case the best plan is not to use this infected urine, except on soils which for a number of years will not be used as pastures.

The burning of grasses at certain times of the year is recommended by Mr. Galtier.

All these means of disinfection have one common object, the destruction of the carbuncular microb, principally under the form of germ or that of *mucedinæ*.

The order directing the *entire* destruction of the cadavers tells sufficiently of our vigorous opposition to the use of the meat or other products under any pretext.

The veterinarian must never forget that anthrax is a fatal zoonosis. He must then advise of the dangers of inoculation all persons who have the care of the sick ones. For this reason also he will prevent any person with wounds or sores on the hands or face attending to these duties.

TRICHINÆ,

A LECTURE DELIVERED BEFORE THE STUDENTS OF THE
AMERICAN VETERINARY COLLEGE.

BY F. S. BILLINGS, V. M.

The very intimate connection which exists between many specific diseases, and diseased conditions of our domestic animals, especially those which are used, either in themselves or through their products, for human food, is a subject which has been left, until the past few years, too much out of consideration, not only

by the public itself, but by those who are especially employed in the study of the question of public hygiene.

While the Bible tells us that the first commandment is "to have no other God beside me," it is unquestionably true that this has to do with the spiritual man, and that the first command to the material man should be, "man, know thyself;" a command which has been for him very much neglected, for the average individual knows very little of the physiological laws which control the action of the machine which he calls his body, or of the causes within or external to himself, which lead to the disturbances of the regular or physiological running action of this complicated engine.

It will be our endeavor in the succeeding pages to briefly call public attention to some of the most important causes of disturbance which come to pass in our own organisms, that are to be sought in our domestic animals, but not to write any learned treatise on the same.

As the majority of the American people are inclined to assume that the limit of all our knowledge may be always sought in the Bible, it may not be inappropriate to turn to the pages of that book in order to see what Moses had to say to the chosen of Jehovah, with reference to the question in point. We find, however, that the laws and regulations which were given to the Jews had far less reference to the health of that people, than to the certain assumed uncleanness or unsuitableness of certain classes of animals for food. Some enthusiasts have even gone so far as to assume that Moses' aversion to the flesh of swine was to be attributed to his knowledge of the presence of trichiniæ in the swine, but as these pests are microscopically small any such assumption is simply to be classed with many another absurdity of ignorance and credulity.

That diseased animals were unfit for food did not, however, entirely escape the attention of the learned author of Israelitish law, but his restrictions as to its use did not extend beyond the chosen people, for he seems to have been as utterly regardless of the effects of such flesh upon others as any modern butcher well could be.

With a *sharpness* for business which could not be excelled by the most expert of Yankee tradesmen, he says: "Ye shall not eat of any thing that dieth of itself; thou shalt give it unto the stranger that is within thy gates that he may eat of it; or thou mayest sell it unto an alien, for thou art an holy people unto the Lord thy God."—Dent. xiv, 21.

Numerous passages which command that all blood must be removed from flesh before using it for food, lead one to infer that all such articles were to be well cooked before being eaten, and that "under-done" or "raw-warm" meats were an abomination to the Jews, as they should be to all people.

Plutarch asks, "Why is it that the priests of Jupiter are forbidden to touch raw flesh?" and answers: "Raw flesh is no more a living creation, but is unfit to eat. Cooking gives it another form."

As we follow the development of civilization we find more and more notice taken of the question in point. It has been reserved, however, for our own day to begin active and systematic research into these relations, and to make earnest endeavor toward the discovery of their causes, the means and ways by which the latter gain access to the human organism, and to seek out conformable means of preventing the same.

We are living in the day which marks the birth of systematic attempts at the development of preventive medicine. The old saying, "An ounce of prevention is worth a pound of cure," is beginning to be practically appreciated by the best minds in the medical profession, and the people as well, and specialists are doing their utmost to forward its universal acceptance.

Not only is human life endangered by the consumption of the products from previously diseased animals, or from the consumption of improperly cured or cooked flesh, but quite a number of animal diseases are capable, by intentional or other means of transmission, of infecting the human organism.

Professor Virchow has said that man is much more susceptible to infection from contagious or infectious diseases of animals than animals are to infection from similar diseases peculiar to man.

TRICHINIASIS OF MAN AND ANIMALS.

There is, perhaps, no one disease of our domestic animals which enjoys a more sensational reputation, or which has been more thoroughly investigated, than the disease of swine caused by the parasite *trichinæ spiralis*. There is none more worthy the attention of the public or the hygienic investigator, than this disease of the swine, and other animals, as well as man. Although the literature treating upon the disease is of comparatively modern origin, still we have no justifiable reason for doubting the presence of these parasites in swine at an early date, and also, that the consequential disease in man must have existed for years, if not centuries, before it came to scientific recognition, probably almost coeval with the consumption of pork as human food.

Heller says, "The history of this disease can be appropriately divided into three periods: the first beginning with the discovery or observation of the capsule; the parasite not being recognized in 1821-28, and including the first description of the capsule by Dr. Hilton, of Guy's Hospital, London, England, in 1835. The second period extends from 1835, when Paget discovered the encapsuled parasite, and Owen described it, giving it its name, *Trichinæ spiralis*, to the first authentic observation of the disease in a human being and the direct establishment of the connection with a parasitic disease of swine, which took place in 1860, which began the third period in the history of the disease," in which we ourselves are at present, for, notwithstanding all the valuable work done in this field of pathological research, the real key to the prevention of the disease, the white stone, which all pathologists desire to acquire, is not yet found, that is, *it is not known how the swine become primarily infected*.

Leidy was the first to discover the encapsuled parasite in the flesh of the pig, in 1847, but as said above, it was not till 1860 that the connection between the parasites infecting the flesh of hogs and man was unquestionably established.

The principal workers in this important field have been Owen, Cobbold, Bristow and others in England, and Luckart, Virchow,

Gerlach, Furstenberg, Zenker and Kuchenmeister in Germany.

Trichina spiralis, is an "extremely minute nematode helminth, the male in its fully developed and sexually mature condition measuring only 1-18 of an inch, whilst the perfectly developed female reaches a length of about 1-8; body rounded and filliform, usually slightly bent on itself, rather thicker behind than in front, especially in the males; head narrow, finely pointed, unarmed, with a simple central minute oval aperture; posterior extremity of the male furnished with a bilobed caudal appendage, the cloacal or anal aperture being situated between these divergent appendages; penis consisting of a single spicule, cleft above so as to assume a V shaped outline; female stouter than the male, bluntly rounded posteriorly, with genital outlet placed forwards—at about the end of the first-fifth of the long diameter of the body. Eggs measuring $\frac{1}{1270}$ of an inch from pole to pole; mode of reproduction viviparous."—*Cobbold Entozoa*, p. 335.

*The shell-less ova develop into minute embryos immediately on fructification, and completely fill the uterus of the female and are born in immense numbers. Scarcely have they become free from maternal protection before they begin their migration over the autositic organism by penetrating the parieties of the intestines in order to settle themselves in the flesh of the same, as muscle-trichinæ." Here, under the protection of a gradually calcifying structureless capsule, the migrated embryos, or muscle-trichinæ, retain their vitality for years, while the sexually matured or intestinal trichinæ perish, as a rule, in the course of about five weeks. The embryos, which sometimes pass away from the autosite, or host, with the fæces, may, under favorable conditions, give occasion to the development of muscle-trichinæ in a second autosite by gaining access to its intestinal tract."

As we have said, these parasitic pests assume two forms, *i. e.*, they may be met with as intestinal and muscular trichinæ, the first representing the sexually matured, the latter the embryonal quiescent, or encapsuled stage of their existence.

(*To be continued.*)

* Leuckart Die Menschlichen Parasiten, Vol. II, p. 512.

EDITORIAL.

VETERINARY INSPECTORS OF MEAT.

Our readers will remember that we have in preceding issues of the REVIEW frequently urged the necessity of the formation of a National Veterinary Sanitary Bureau. It is, therefore, very gratifying to us to see no less an authority than that of the *Medical Record*, of this city, endorsing our views, and urging its establishment under regulations similar to those we have already suggested.

We agree with our contemporary in all the points he has taken in this matter. With him we do not see any necessity for an independent board, which would probably not command for its labors the support that it would obtain if it was connected with either of the existing Department of Agriculture, or, perhaps better, the National Board of Health.

By a recent action of the Secretary of the Treasury, however, a National Cattle Commission having been appointed, the question might arise whether this Commission is not likely to become the nucleus of the Veterinary Board we have been asking for. It is claimed, it is true, that the Commission was only appointed with the object of taking measures against the bovine lung scourge, but we are inclined to believe that its labors will not be limited to that disease, but on the contrary, that they will be much more comprehensive, and include other diseases which are now threatening the decimation of our domestic animals generally.

While considering this question of the regulation of sanitary veterinary medicine, we are brought to the consideration of the relations existing between the veterinarian and the public health in connection with the inspection of meat in reference to its fitness for human consumption as food. A glance at the position of the Meat Inspector in European cities, and in our great metropolis, will show the difference between the two.

How are our Meat Inspectors appointed? What amount of knowledge are they required to possess? With one or two excep-

tions, outside of New York, are the persons appointed qualified for the position? We reply without hesitation, they are not. Politicians, police officers and butchers are those who receive the responsible office which empowers them to condemn or approve the meats brought to market for public consumption.

In Europe, in France for example, we find that these places are opened to competition; and in what does the examination consist? In one case, for a position of Veterinary Inspector of the abattoir of Besancon, the public announcement showed that the candidate would be submitted to four examinations. First—A written report or paper upon a subject of pathology and pathological anatomy. Second—In sanitary inspection and autopsy of animals. Third—Examination, with microscope if necessary, of meats. Fourth—Examination upon alterations of alimentary substances.

European veterinary journals are at various times giving us notice of these examinations, no one being admitted to the competition unless he holds *the diploma of one of the Veterinary Schools* of the country.

By objectors to such appointments here, it has been claimed that our veterinarians were not competent to decide as to the quality of various meats. We cannot, however, entertain such a statement. Thoroughly acquainted, as they are supposed to be, with the various changes incident to diseased conditions, and knowing the lesions that diseased processes leave behind them, their causes and their nature, we hold that no class of persons are better qualified than they for the position. Our Veterinary Schools, by their special curriculum, educate young men in just that particular direction. Veterinary students are not only taught and shown the alterations that will be presented by the meat of diseased animals, but they are more or less initiated in the use of the microscope, and by its aid they can detect many diseased conditions which would escape the attention of those unfamiliar with its use.

The days are gone when veterinary medicine in the United States consisted only in the treatment of diseased animals. The days of the old-fashioned "horse doctor," and "cow-leech," are

gone by, and within a few years the veterinary profession has taken a foothold amongst us which must become more and more assured every day, and more widely accepted by the public, while the highest positions of Cattle Commissioner and Veterinary Sanitarian have already received acknowledgment of the value and usefulness of their labors. The time has also come when the more modest, but not less useful, position must be created, namely, that of Veterinary Meat Inspector. Boards of Health have Inspectors for most of their specialties, and we are at a loss to learn why, while the physician will make a better *Milk Inspector*, the veterinarian cannot be selected for the position for which, by his professional connection, he has been fitting himself. It is only in the United States that a man is appointed as an "expert," to "inspect" and "appraise" goods or wares which he has never studied or learned.

PLEURO-PNEUMONIA.

At a meeting of the Philadelphia Society for the Promotion of Agriculture, November 2d, Dr. J. W. Gadsden spoke of the proclamation of Gov. Cullom of Illinois, prohibiting the importation of any animals of the bovine species into that State after the 10th instant, from the County of Fairfield, in the State of Connecticut; in the Counties of Putnam, Westchester, Kings and Queens, in the State of New York; in the Counties of Lehigh, Bucks, Berks, Montgomery, Philadelphia, Delaware, Chester, Lancaster, York, Adams and Cumberland, in the State of Pennsylvania; in the Counties of Bergen, Hudson, Morris, Essex, Mercer, Monmouth, Union, Somerset, Hunterdon, Middlesex, Ocean, Burlington, Camden, Gloucester and Atlantic, in the State of New Jersey; in the County of Newcastle, in the State of Delaware; and in the Counties of Cecil, Harford, Baltimore, Howard and Carroll, in the State of Maryland. Cattle from these districts will only be received when accompanied by a certificate of health from a duly appointed Veterinary Inspector.

There is much wisdom in thus restricting traffic from these infected districts. The "Treasury Cattle Commission" have reported the States west of the Alleghanies free from this disease, and it is earnestly to be hoped that each State will follow the example of Illinois, and by this means confine the scourge to the already infected districts.

From present appearances this is the most that can be done. We have never considered the present means and plans sufficient to *eradicate* contagious pleuro-pneumonia from our States. More stringent measures must be adopted before the result can be had. What is being done in any of the States can, at most, but hold the disease in check.

As proof of this we need only refer to Pennsylvania: A short time ago this State was considered to be almost, if not entirely, free from the lung-plague. From the report of Dr. Gadsden and others, however, it appears that in reality a clear bill of health for Pennsylvania is as far off as ever. The passage of cattle from Baltimore into this State has infected new districts, and thus it will ever continue to be until the country sees the necessity of absolute quarantine and more stringent measures. The authorities in charge in the different States are probably doing all in their power—the very best they can—but how much longer must we witness their failure before the Government will appreciate the fact and act upon it that *restriction* is not *extermination*?

One does not need to be very much of a prophet to predict for pleuro-pneumonia in the United States, a speedy and effectual eradication if properly managed; or, if dealt with by present methods, a sure and permanent home upon our soil.

NOTICE.

On account of the crowding of material in this number of THE REVIEW, several interesting communications received for publication have to be postponed to our next issue.

ARMY VETERINARY MEDICINE.

ITS HISTORY ; THE PRESENT CONDITION OF THE ARMY VETERINARY SURGEON ; HIS RIGHTS AS A REPRESENTATIVE OF A SCIENTIFIC PROFESSION, AND WHAT IS REQUIRED BY THE GOVERNMENT TO ESTABLISH AN EFFICIENT VETERINARY DEPARTMENT.

BY A. A. HOLCOMBE, D.V.S., Veterinary Inspector U. S. A.

(Continued from page 349.)

This completes a short description of the individuals composing the Army Veterinary Corps—two of them graduates of the American Veterinary College, two of the New York College of Veterinary Surgeons, one of the Toronto Veterinary College, and three of the English College; while four are not graduates. It would, perhaps, seem ungenerous under the circumstances, to suggest that Army Veterinary Surgeons in the United States should be graduates of American schools, and yet I am of opinion it would only be just to restrict appointments to such. Under existing orders controlling the Department, they must be secured wherever they may be had, but if the Veterinary Surgeon is made a commissioned officer so that the position will be considered worthy of acceptance by the best, the Government owes it to our home colleges to give them first opportunity to supply the army's needs in this regard.

There seems to be some difficulty about filling the vacancies in the Fourth, Tenth, and First Regiments, but whether the fault lies with the applicants, the want of applicants, or with the authorities, I do not know. If the credentials of the applicants are satisfactory, I am not aware of any legal right by which the Secretary of War may refuse to make an appointment, for the law says the first six cavalry regiments shall have *one* Veterinary Surgeon apiece, and the remaining four regiments *two* apiece; seemingly not leaving the matter to be determined by the inclination of the commanding officer of the regiment, nor the pleasure of the Secretary of War.

But be the cause of the vacancies what it may, there are certainly no inducements for the qualified veterinarian to enter the

army, unless he is young, careless of his opportunities for the future, and anxious to see things at any cost; for he is not a commissioned officer, but is in reality a civilian employed to care for Government property, and being without rank, has no associates except it be the enlisted men of his regiment, or the civilians at his post. He cannot expect nor does he receive any social consideration from the officers. Educated as the great majority of Veterinary Surgeons now are, this exclusion alone is sufficient to deter most from seeking entrance to the army, for the officers make the breach between themselves and the civilian employee almost as impassable as that between them and the men in the ranks. In most instances it matters not what the Veterinary Surgeon's antecedents may have been; he may be a member of one of the best families in the country, a graduate of Harvard and highly accomplished in every respect, yet he must expect to be unnoticed socially, and, if opportunity offers, snubbed, especially by the younger officers. What matters it that they served in the ranks a few months ago, and married their laundress or an officer's servant! They don't know Latin from Greek, nor French from German; they never saw good society, nor do they know what it is, but they have been made a Second Lieutenant, and that *alone* entitles them to a consideration which intelligence and real worth cannot command. They may concede, perhaps, that you were a gentleman until you studied veterinary medicine. *That* was unpardonable. If you had spent half the effort to acquire a knowledge of human medicine, you would have been gladly received as a Surgeon. But you are a "horse doctor!" They really don't know what that is, only that it is something "awfully vulgar!"

And your family fares even worse. It doesn't count with them that you married the accomplished daughter of an ex-army officer, and that your children are the brightest at the post. Neither they nor their mother are considered suitable associates for the ex-laundress and her offspring. And yet all officers have been civilians, have married civilians, and their children, in most instances, marry or become civilians, and *as civilians* they are valued by sensible people at their true worth, irrespective of their profession, providing it is honorable.

The pay of the Army Veterinary Surgeon is meagre for the service rendered, and entirely inadequate for respectable support. Competence is not to be thought of on a salary of 75 or 100 dollars a month. There is no future to anticipate, for there is no promotion except in the four regiments having Senior Veterinary Surgeons, and this is so inconsiderable that it can scarcely be reckoned an especial honor.

For honorable service, for bravery, for a life worn out, there is no reward. When old age creeps over his powers and renders him unable to withstand that which a performance of his duties demands, he receives the same treatment as the broken-down mule that fails on the march—he is turned out to beg, to starve, or to die, while his family must shift for themselves.

This is in reality the Army Veterinary Surgeon's condition, if one exception is made regarding the pay of the Inspecting Veterinary Surgeon in the Department of the Missouri. It is a disgrace to the Government and to the profession that the Army Veterinary Surgeon is accorded such treatment. The remedy should be enforced through the influence of the profession. It *can* be done.

But let us see what the Army Veterinarians have done for themselves since March 27, 1879!

During the summer of 1880 James Humphreys prepared and circulated among the graduated Regimental Veterinary Surgeons, for their signatures, a bill to be presented, through the Secretary of War, to Congress, which had for its purpose the establishing of an Army Veterinary Medical Department, to consist of—

One Chief Veterinary Surgeon; rank, pay, etc., Captain (mounted). Twenty Veterinary Surgeons; rank, pay, etc., First Lieutenant (mounted). Twenty Assistant Veterinary Surgeons; rank, pay, etc., Second Lieutenant (mounted).

This bill and petition were returned by the Secretary of War with the endorsement that he did not approve of any other Veterinary Department than the one now existing, and therefore declined to present the bill.

Near the close of the year copies of the following letter were mailed to the Veterinary Surgeons of every cavalry regiment:

"FORT LEAVENWORTH, Kans., December 10th, 1880.

"*Dear Sir :*

"Desiring to see the veterinary profession properly represented in the United States army, and to have the Army Veterinary Surgeon a commissioned officer, I would respectfully ask if you will lend your influence to an endeavor in that direction.

"If so, be kind enough to communicate with me at the earliest convenience.

Respectfully,

"Your obedient servant,

(Signed,)

"A. A. HOLCOMBE,

"*Inspecting Veterinary Surgeon, U. S. A.*"

To this letter I received answers favorable to the project from Veterinary Surgeons Humphries, W. H. Going, Peters, J. B. Going, Hingston, Bock and Tempamy. From the remaining four I received no answer whatever.

It had been the intention of the author of the above letter to secure the co-operation of all the Veterinary Surgeons in the army in petitioning Congress to do us the justice of passing a law that should make us commissioned officers. But learning of the failure of the petition originating with Veterinary Surgeon Humphries, it was determined to present to the United States Veterinary Medical Association a short account of the growth of veterinary medicine in the army, to enumerate our grievances, and, showing you how little we can hope to accomplish single-handed, ask that you espouse our cause in the interest of all veterinary medicine.

That we are not accorded our just rights, I feel sure you already know. That they are not fully or ably set forth in the following pages of this article, I am sensibly conscious, while the needs of the Government to establish a proper Veterinary Department, as hereinafter set forth, may not meet with your more mature views.

But however much we may differ on minor points, there can be no difference of opinion regarding the stigma which the present Department is to the profession, nor do we doubt but that you can render us such assistance as will make our positions at least respectable and endurable.

The Rights of the Army Veterinary Surgeon as a Representative of a Scientific Profession.

Veterinary medicine has reached a point of development at which it ceases longer to be a mere art, and its value to the progress of nations can no longer be questioned. The eminent services it has at all times rendered human medicine is a matter of common history, while its recognition as a specialty of general medicine is complete in most European countries.

How much it has added to the wealth and happiness of mankind is beyond computation, and only the student of its history can have a conception of the many influences it has exercised in the development of physiology, therapeutics, and experimental pathology. How greatly it will add to our rapidly growing agricultural interests when it is permitted to exercise its proper influence, is not now determinable, although the General Government has been lately compelled by foreign powers to acknowledge that *veterinary medicine alone* could afford protection to our endangered live-stock interests. It was veterinary medicine in the countries with which we have intimate commercial intercourse that discovered the many sources of danger to which their citizens were subject from the indiscriminate use of meats, and it was their exertions in behalf of their countrymen that directed the attention of the authorities to these dangers. Very properly our Government has sought the assistance of the Veterinary Surgeon to control animal diseases, even though a little coercion was required to effect it. It will be gratifying to the workers in the profession when our Government voluntarily acknowledges the importance of veterinary science as a factor of preeminence in all true political economy.

What the Veterinary Surgeon is to foreign governments he must eventually become to ours, for veterinary surgery in this country is growing with such rapidity that it must soon cease to be a mere *follower* in the lead of others, and become with them a *leader*.

It is unfortunate that this fight for progress must be made without the assistance of a Government that has so many claims

to being considered liberal in the support of all struggling science; for it not only handicaps the professions, but deprives the Government and the people of the untold advantages which must necessarily result from an early diffusion of every newly-gained truth that directly affects their interests.

Our Government, in general, cannot be said to foster the growth of veterinary medicine, but rather, in most instances, to disparage the value of all information coming from that source, and to deride its warnings of danger. That this course has been a costly one to the nation will be readily seen from scanning the official reports of losses from hog cholera, contagious pleuro-pneumonia and other contagious diseases.

The interests which veterinary medicine guard, though receiving, in years past, comparatively more attention from the War Department than from any other department of Government, are very poorly protected in the army; and the present apparent apathy in these matters is no doubt principally due to that absence of individual responsibility, in case of loss, which characterizes the officer in charge of such property, in contradistinction to the owner of private property where a loss becomes a personal one.

The interests of the Government should be considered by the officer as paramount to those of a personal character, and yet a Quartermaster in charge of between \$20,000 and \$40,000 worth of horses and mules, when prompted by a whim, has refused the services of a qualified Veterinary Surgeon employed by the Government at his post, and accepted in his stead the services of a blacksmith! And it would seem that the responsibility for such action, and the subsequent losses which follow, are not subjects for review or consideration by superior officers.

The remedy is not far to seek.

The efficiency of troops, particularly in Indian warfare, is as much dependent on the condition of the horses and mules as upon the men, and the veterinarian's knowledge of sanitary science and police enables him to maintain a standard of health which cannot be otherwise secured, while his acquaintance with diseases and their treatment prevents the extension of contagious diseases, and unusual losses from those that are curable.

From the standpoint of impartial justice, the services of the Surgeon could as well be dispensed with as the services of the Veterinarian; and could the army horse and mule give expression to their sentiments they would no doubt protest against being deprived of proper medical and surgical treatment, or, being debarred from this, refuse to enter the service at all.

In all foreign countries having any pretensions to a higher civilization, in which an army of any consequence is maintained, the Army Veterinary Surgeon is a commissioned officer. A single illustration in point will be sufficient for our present purpose.

In the English army "the ranks and rates of pay of the officers of the Veterinary Department" are as follows:

- 1.—Principal Veterinary Surgeon, per year, inclusive of all allowances..... £750

DAILY.

£ s. d.

- 2.—Inspecting Veterinary Surgeon.....1 5 0

After 25 years' service.....1 7 0

" 30 " "1 10 0

- 3.—Veterinary Surgeon of the 1st Class.....0 16 0

After 5 years' service as such.....0 18 0

" 10 " " "1 0 0

" 15 " " "1 2 0

" 30 " total service.....1 4 0

- 4.—Veterinary Surgeon on appointment, per year, £250

The relative rank of the officers of the Veterinary Department shall be as follows:

(a.) Principal Veterinary Surgeon shall rank as Colonel.

(b.) The Inspecting Veterinary Surgeon acting as Principal Veterinary Surgeon in India shall rank as Lieutenant-Colonel.

(c.) Inspecting Veterinary Surgeon shall rank as Major; but junior of the rank, except for choice of quarters.

(d.) Veterinary Surgeon, 1st Class, shall rank as Captain.

(e.) Veterinary Surgeon shall rank as Lieutenant.

5.—"The relative rank of these officers shall carry all precedence and advantages (except as regards forage allowance, and in certain cases, choice of quarters), attaching to their correspond-

ing military rank, and shall regulate detention and prize money, allowance granted on account of wounds or injuries received in action, and pensions and allowances to widows and families."

It is true our army cannot be compared to the English in point of *size*, but as regards *efficiency*, that is just as essential to our small army as to any; and a maximum efficiency of the transportation and cavalry service can never be effected without proper veterinary service; and proper veterinary service cannot be secured until the Army Veterinary Surgeon's condition is greatly improved.

That the present Army Veterinary Department is grossly inefficient must be patent to any one acquainted with its composition—a fact that will be conceded, I think, by every Veterinary Surgeon in the army. That the primary cause of the inefficiency is not dependent on the profession is susceptible of the readiest demonstration.

The simple fact that the Government has established a Veterinary Department is her acknowledgment of its importance and necessity; but that she recognizes in herself the cause of the Department's inefficiency, or that she even is conscious of the existence of such inefficiency, is doubtful.

It is reasonable to infer that she considers Gen. Ord. No. 36, '79, as a consummation of her duties to the profession, the Veterinary Department of the army, and herself, and yet she has in reality accomplished but a tithe of what was no doubt expected when the order was issued. It is true the order compliments the profession when it says: only qualified Veterinary Surgeons shall hereafter receive appointments; but the compliment is an empty one unless supplemented by Congress with a law that shall recognize the right of the Veterinary Surgeon to a just compensation for his time and services.

As the matter now stands, the Government has virtually said to the Veterinary Surgeons of the country:

"We are greatly in need of your services. We know you have been educated in a scientific profession to the same extent and at the same cost of time, labor and money as our surgeons. We recognize it is to our advantage to secure the best talent to be

had, but we can't *pay you* for your time, your outlay and your superior services. We acknowledge that you who have spent eight years of your life at college and three or more learning your profession are the gentlemen we want, but we can give you no more in compensation than we give Michael O'Flynn, the blacksmith, and Terry Flannigan, the butcher. True, they can neither read nor write, nor do they know the value of one therapeutical agent from that of another. Disease to them is as much a mystery as any of the ancient hieroglyphics of the Egyptians, but no matter, the time *was* when we could get no others, and now *you* must take the *same terms* as *they* have had for *twenty years*, for we can't afford to raise *their* pay and rank, we don't like to discharge them, and so we must class you with them."

There can be no justice in such treatment of the Veterinary Surgeon. It can only create a feeling of bitter resentment in a sensitive nature to be told that all your instruction, your labor of years and your higher intelligence count for nothing in the Army Veterinary Department. There is no justice in classing an educated veterinarian with the empiric who is but little] above the brute he maltreats, and to deny the former a higher recognition than is conceded the latter, only serves to repel the talent of which the army is in great need.

The Veterinary Surgeon which the Government now has most use for in her service is the one that has every claim] to the position of a gentleman, a scientist, and a willing worker. *To secure such the Veterinary Surgeon must be placed upon an equality with the other commissioned officers of the army.*

Until this is accomplished, the Department must remain what it is now—utterly inefficient in so far as the Government is concerned, of but little account to itself, and still less to the profession.

What is Required to Establish an Efficient Army Veterinary Department.

The Army Veterinary Department, as now established, is inefficient for the following reasons:

1st. There are no inducements offered by the Government to

secure the services of even *average* veterinary practitioners, and as a consequence there is but little real ability in the Department.

2nd. There is no effective attempt made to secure the interest of the Veterinary Surgeons who are serving in the army. There is no stimulus to do more than necessity demands.

3rd. Some of the Veterinary Surgeons are incompetent to practice in any place or under any circumstances.

4th. The Veterinary Surgeon's authority is too limited to allow his services to become fully effective.

If, then, the Department is to be made of any practical value to the army, the existing obstacles must be overcome. Let Congress place this Department on a level with the Medical Department and there will be no difficulty in securing the services of the ablest veterinary surgeons—men who will be of indispensable value to the army, to the profession and to the country.

There is a great plenty of work for them to do. I do not mean simple *routine practice*, but that higher labor which begins with investigation and results in discoveries of importance to all mankind.

Until the opportunity is offered, this work will not be accomplished by the Veterinary Surgeons of the army, and the stimulus will consist in a *salary* that will at least preclude want, a chance for *promotion*, the privilege of *retirement* after a prescribed length of service or from old age, and a *pension* to his family in case of death.

All these conditions and privileges are denied him to-day. It is time the army had rid herself of all incompetent surgeons, it matters not whether they are graduates or non-graduates.

In the future none should be appointed unless their abilities are known to be at least up to the average. The simple fact that the candidate has graduated from a veterinary college is by no means conclusive evidence that he will prove an efficient surgeon for the army. *His adaptability for the service should be tested before he receives permanent appointment.*

When the Army Veterinary Surgeon is made an officer whose professional opinion shall carry with it the authority vouchsafed now to the Army Surgeon, his services may become effective. As

it is now, he can only make suggestions which may or may not be complied with. If his commanding officer, even though but a second lieutenant who has no knowledge of the habits, diseases or abilities of the animals in his charge, sees fit to ignore his directions, the inevitable is to submit. If the same officer chooses to do without your opinion entirely, you have no alternative. The Veterinary Surgeon is a sort of convenience whose services may be used or dispensed with at will. He may stand by and witness the death of the best horses in the service, brought about by the malpractice of an ignorant blacksmith, and yet powerless to interpose an authority that could have the least weight in saving the life of a public animal.

The personal animosity of the officers in charge permits him to vent his spite at the expense of the Government. It has happened under my own observation, and I have no doubt in other instances. It is an expensive pleasure which can be curtailed by making the Veterinary Surgeon a commissioned officer.

The present constitution of the Veterinary Department renders it impossible for the general results of the employment of skilled veterinarians to be even approximately determined. But a small percentage of the public animals have the benefit of a Veterinary Surgeon's care, and many of these under such adverse circumstances that only a comparatively limited good result is appreciable.

Assigning one Veterinary Surgeon to a cavalry regiment which is divided into two, three or more battalions, serving at as many different posts, sometimes hundreds of miles apart, is a most imperfect providing of veterinary attendance.

The Veterinary Surgeon in such cases is generally stationed at headquarters of the regiment with, as a rule, not more than 50 per cent. of the horses belonging to the regiment. The other 50 per cent. are deprived of medical attendance, unless there happen an outbreak of some contagious disease amongst them, when it is customary for the Veterinary Surgeon of the regiment to visit them. If such an outbreak happen in all the battalions at once, then the chances are that but the animals at headquarters will receive proper attention, or if otherwise, all may receive an imperfect attention.

Nor should the Veterinary Surgeons be confined to cavalry regiments alone. His services are just as essential in the light Artillery and Quartermaster's Department. Unfortunately there are many small posts garrisoned by the army, so that too many of the commands are so small as not to warrant the employment of veterinary attendance for the sick. But it is the opinion of prominent army officers that in a few years time troops will be stationed in large garrisons, the smaller posts being abandoned. When this is effected, the veterinarians' services will be more effective; and, to guard against the danger of congregation, violated laws of hygiene, and the disasters of contagion, more necessary than now.

The army now needs at least the following officers to constitute a proper Veterinary Department :

1. *One* Chief Veterinary Surgeon.
2. *Ten* Inspecting Veterinary Surgeons.
3. *Ten* Senior (Regimental) Veterinary Surgeons.
4. *Ten* Junior " " "

The rank, pay, etc., of the 1st should be that of a Major.

The " " 2d " " Capt. of Cavalry

The " " 3d " " 1st Lieut. of "

The " " 4th " " 2d " "

After a service of five years the Junior should be entitled to rank and pay of a Senior.

At the end of ten years total service, the Senior should be eligible for promotion to Inspector, in event of a vacancy.

On completing twenty years of service the Inspector should be eligible for promotion as Chief.

The Chief Veterinary Surgeon should be stationed at Washington, D. C. His duties should consist in the examination (as *one* of a Board) of all candidates for commissions and promotions; the revision and supply of all requisitions for veterinary medicines, instruments and dressings; the inspection, tabulation, etc., of all reports; and, when necessary, the investigation and direction of the treatment of diseases.

Inspectors should be stationed at headquarters of military divisions and departments. Their duties should consist in the

inspection of all animals presented for purchase to the Government; the inspection of all animals recommended for condemnation, sale or destruction (unless inspected by a Junior or Senior); the revision, with recommendation, of all requisitions for medicine, instruments and dressings, and the investigation and treatment of any diseases which may occur in the department or division requiring their attention.

Seniors should be assigned to duty in regiments of cavalry. Juniors should do duty at whichever posts are most in need of their services.

Although the department would consist of but 31 members, their work could be made very effective. On the part of the profession, I believe our claims are moderately stated, while I am confident from my short army experience the Government would be highly benefitted.

My intercourse with the officers of the army has, in nearly all instances, been very pleasant indeed, and the presence of highly educated Veterinary Surgeons as officers of the army, I believe, would be welcomed by them as a valuable acquisition to the service.

In conclusion, let me beseech you to exercise, in behalf of myself and colleagues, the influence of your Association, in that we may accomplish an improvement in our condition, and effect that recognition of our rights which we believe is due to us.

Fort Leavenworth, Kan., Sept. 5th, 1881.

COMPARATIVE PATHOLOGY.

UPON THE PARASITISM OF TUBERCULOSIS.

BY M. TOUSSAINT.

The following note is extracted from the *Comptes Rendus de l'Academie des Sciences* :

“After having obtained, in a purified glass bottle, the blood of a tuberculous cow, I placed the serum found after coagulation into Pasteur's tubes, containing bouillons of cat, pork, and rabbit meat. Pure serum was also placed in a separate tube and placed

in the drying stove. After several days most of these liquids offered very small granulations, simple, germinated, or gathered in small masses. I made second cultures, and afterwards inoculated to young kittens; these animals live with difficulty in captivity, and all died from exhaustion, before it was possible to observe tuberculosis. Five months after having collected the serum, I had occasion to inoculate two other cats, almost adult, with the contents of a syringe of Pravaz, with the serum, which had been kept for several weeks in the drying stove, and which presented spherical granulations. The two cats were killed 47 days after inoculation.

“One of them showed a local lesion, quite well marked, and a voluminous prescapular ganglion; but the lung contained no tubercles. The second presented the same local or ganglionic lesions, and besides, some twenty very small tubercles, here and there, in the lungs. The microscopic examination showed that it was true tuberculosis. I only mention this fact to show the duration of the preservation of the tuberculous virus. This experiment is evidently insufficient to prove the existence of the microbe.

“The 1st of March I killed a young sow, which had eaten four months before, in two days, the lung of a cow, which weighed 39 kilog. (about 78 pounds), which came from a slaughter-house. The sow had well-developed tuberculosis. * * * I saved, with all the care necessary in such cases, some of the blood and pulp of the pharyngeal, pulmonary and intestinal ganglions, and I made a culture in seven bottles, containing slightly alkaline bouillon of rabbit. As early as the next day they were cloudy, and all contained one and the same microbe. These cultures, carried to the 10th, all preserved their purity. The activity of the growth lasts from 10 to 15 days, after which the fluid clears off, and the microbe fall to the bottom of the bottle and form a deposit slightly yellow in color. Their refringency is then greater than at the beginning of the experiment, and their diameter has diminished, becoming a little below that of the microbe of chicken cholera.

“The first inoculations of these cultures were made on rabbits,

in the subcutaneous connective tissue. All were negative, except one, which was made with the fluid of a third culture. A rabbit killed accidentally by a dog, on the 33d day, showed in the lung a few tubercles of true histological character. But when cats were inoculated in the peritoneum, the results were different. Here, again, the animals died from exhaustion, after a month of captivity, during which time they were constantly fed on well-cooked meat. The first cat which died had enormous intestinal ganglions, even caseous in some places; but at that time the tuberculosis was not yet generalized. After scraping with a scalpel a section of the ganglions, the pulp and the serosity were inoculated in the ears of eight young rabbits, all of whom became tuberculous. After two months the infection was general, the lungs and spleen being filled with grey tubercles. The first rabbits killed were used for the inoculation of a second series of rabbits, which all present now the symptoms of tuberculosis. Two rabbits of the first series will be preserved until they die, in order to furnish the last and final lesions for examination."

EXTRACTS FROM FOREIGN JOURNALS.

ACUTE JAUNDICE OF SHEEP.

BY PROF. ROLOFF.

Researches made at the Veterinary School of Berlin have proved that acute jaundice in sheep fed with hay containing lupine may be sometimes compared to the acute yellow atrophy of the liver, and at others to the acute intoxication of phosphorus. Animals succumb after one or two weeks, or but partially recover, with an atrophy of the liver. Less frequently their recovery is complete. When fed for a long time with samples of lupine, whose dangerous properties are less active, an interstitial hepatitis follows. The urine contains biliary coloring matter; is almost always albuminous, and contains often hyaline or granular cysts. It is, however, a remarkable fact, that notwithstanding the frequently enormous atrophy of the liver, the urine does not cease to contain urea or hypuric acid, but neither leucine nor tyrosine

can be found in it. In respect to the point of view of the dissemination of the lesions, this affection may be compared to acute infectious diseases; indeed one finds the glandular elements of the liver, kidneys and spleen; the fibres of the myocardium and of the striated muscles in a state of tumefaction, with the icteric coloration of most of the tissues in diffused hemorrhages.

Lupine manifests its deleterious action as well on the horse, the goat, and the dog. Its toxic principle is soluble in ether, alcohol and glycerine, and it is easily soluble in pure and slightly acidulated water, and very much so in alkaline liquids. When lupine is exposed for ten consecutive hours to a heat of 120° , or is boiled during four hours under an excess of pressure of from one to one and a half atmospheres, its toxic power is diminished, but not destroyed; the distilled fluid still contains a portion of it. The preservation of the plant in a well-dried medium seems to increase rather than diminish its deleterious properties. According to this, it is probable that the toxic agent is an organic acid or a glycoside.—*Centralbl. f. die Med. Wiss.*

DURATION OF IMMUNITY AFTER CONTAMINATION.

BY PROF. SEMMER (DORPAT.)

After mentioning the recent researches of Messrs. Toussaint, Chauveau, Arloing, Cornevin and Thomas in preventive inoculations, the author says, that with the assistance of Prof. Raupath, he has also succeeded in rendering sheep refractory to vaccination, after having injected them, through the jugular, with some drops of vaccinal lymph taken from an animal of the same species, or after injecting them under the skin with some of the same lymph mixed with blood, exposed to a heat of 55° —or a bouillon containing bacterias in suspension in the vaccinal lymph, cultivated at a temperature of 40° . All the animals thus vaccinated had the characteristic febrile reaction of variola, but no eruption. This then is one step forward in the generalisation of the method recommended by Pasteur, to impart, without great risks, immunity against many of the prevailing contagious diseases.

As to the principal question, that of the duration of the

immunity thus gained, it may vary according to the disease. For contagious septicemia of rabbits, it lasts scarcely three months; and for anthrax it seems, according to Semmer's observations, very limited.—*Central f. die. Medic. Wiss.*

CONTAGIOUS PYÆMIA OF RABBITS.

BY PROF. SEMMER.

The author inoculated rabbits with anthrax blood, heated first at 55°. This was on the 29th of April. On the 2d of May one died, the autopsy showing that death was caused by pyæmia, and not by anthrax, or septicemia. At the point of inoculation, an abscess had formed containing very dense pus. The deep seated organs were ecchymosed and had infarcti. The blood, of a normal color, was rich in leucocytes, the hematics being ragged, and surrounded by the micrococci, which were also found in the serosity of the blood and of the pus.

Another rabbit, inoculated with the blood of the first, died in six days. At the point of inoculation an abscess was formed, full of concrete pus, in the center of which were seen numerous micrococci; but no imbibition of tissues, nor serous transudations; no putrefaction and none of the lesions of septicemia. With the pus and blood of the second rabbit, a third was inoculated, and also in the same manner a series of nine animals. All, at the post-mortem, exhibited the same microscopic alterations. Comparative inoculations, made with ordinary pus, always gave negative results.

The above, Prof. Semmer concludes, establishes the existence of a contagious pyæmia, essentially different from septicemia, as it does not give rise to a rapid putrefaction of the cadaver; to the dissolution in mass of the red corpuscles; to œdematous imbibition of the tissues, or to the serous transudations. The disease has for its germs small moving micrococci, which are especially abundant in the pus, blood, liver and kidneys. The contagious power and malignant character of the disease are not inferior to those of septicemia and anthrax.—*Central f. die. Medi. Wiss.*

EQUINE DISTEMPER,

(INFLUENZA ERYSIPELATOSA EQUORUM. FEBRIS CATARRHALIS
EPIDEMICA* CONTAGIOSA EQUORUM).

BY PROFESSOR DIECKERHOFF, BERLIN ROYAL VETERINARY SCHOOL.†

Since the spring of the present year, the equine population of France and Germany has been visited by an epizootic, which, in the literature of the last few years, has been principally discussed under the title of "Influenza," or a particular form of influenza.

Its character and nomenclature are subjects upon which professional men hold the most contrary views. In the hope of assisting to solve these difficulties, I venture to offer a few general remarks upon the disease to the readers of this journal.

The history of veterinary science shows the malady to be by no means a new one. Solleysel observed it in Germany in 1648. It was widely diffused over Western Europe in 1688 and 1699. Great numbers of horses were affected in Europe in 1711 and 1712; again in 1732, as well as in 1767 and 1776. In 1786, breaking out afresh in Hanover, it gradually extended to Southern Germany and Italy. When in 1804 and 1806, it visited Denmark, Germany, Italy, and other portions of Western Europe, it received a great amount of attention from the veterinarians of that time. They bestowed upon it such names as, Influenza, Nervous Catarrhal Fever, etc. In the ever-memorable years of 1813 and 1814, the Russian army imported it into North Germany, from which circumstance it became known as the "Russian horse-sickness." The years 1824 and 1825 were characterised by its general distribution in France and South and West Germany. Girard designated it "Gastro-Entérite," whilst in Germany it was frequently spoken of as "The French-sickness." "Horse-typhus," "Pulmonal-typhus," and "Typhoid Influenza," are others of the many terms which it has at various times received. In 1851 North Germany, and especially Berlin, were once more the seats

* Epizootica (?)—Translator.

† Translated from "Adam's Wochenschrift für Thierheilkunde und Viehzucht." September, 1881. By W. F. Garside, M.R.C.V.S.

of its ravages. In the Austro-Prussian campaign of 1866, it was very prevalent amongst the cavalry horses at Vienna. Roll described it as the "Catarrhal form of Influenza." In the autumn of 1869 it was observed in St. Petersburg, and in the beginning of the following year made its appearance at Dorpat and the neighborhood, where it was studied by Jessen, who named it influenza. Very soon afterwards the extensive transport of horses from Russia, consequent on the Franco-German war, was the means whereby it again gained access to Germany. Proceeding onward from east to west, it soon reached other parts of Germany, as well as Belgium and France. The horses of the occupation-army were for several weeks in the spring of 1871 the victims of its ravages, and as the German legions withdrew, it followed them to South Germany. England was the next country invaded, the horses especially in the large towns suffering severely in 1871 and 1872. When in 1872 it made its appearance in the New World, it created a great stir and sensation. To me it seems not at all improbable that the contagion was conveyed from England to Canada, where it first broke out. In a few weeks it had reached the principal towns of the United States, where the immense losses it occasioned soon attracted the attention of the press, whose accounts of the disease were in all probability greatly exaggerated. The *American Veterinarian* regarded it as a new disease, and described it as "Influenza," or as "Epihippic Fever." The German dailies soon came to speak of it as the "American horse-sickness."

From France we learn that the disease was very prevalent during the early months of the present year, especially in the capital. The French veterinarians applied to it the terms "Gastro-enteritis," or "Gastro-hapatitis." During the previous month it broke out in Alsace, in Baden, and in Bavaria (Munich).

In Berlin it was noticed at the commencement of last June, since when it has spread to many large horse establishments, and at the present moment is still extending its area. The Berlin Omnibus Company possesses 1,050 horses, stabled in five depots, four of which the disease has gradually invaded. Up to the present time 497 horses have been affected, the greater portion being now,

however, convalescent. Thirteen cases have terminated fatally. In several other large establishments the mortality has reached ten to fifteen per cent., in others the loss has been very trifling; so that perhaps about five per cent. may be taken as representing the average mortality amongst affected animals.

In this short essay my intention is not to enter into a discussion as to the pathology of the malady. I shall content myself with saying that it is a specific, contagious, infectious febrile disease running an acute course. Its origin is always to be traced to contagion. Other causes take no part in its production. Infection results as a rule from the expired air of diseased or convalescent animals. It may, however, arise from a veritable transmission of the contagion by persons from diseased to healthy animals. After infection, five to six days usually elapse prior to the first symptoms becoming manifest. Convalescence occupies very often one to two weeks, relapses during this period, however, being by no means unfrequent. Those horses which at the commencement of the disease are taken off work, placed in suitable, well-aired stalls, and carefully attended to, have almost without exception the disease in a mild form; whilst, on the other hand, horses which continue to be subjected to exertion, or are maintained in close overheated stables, invariably suffer to a much greater extent.

About ten per cent. appear insusceptible to the contagium, and fifteen to twenty per cent. of the affected ones suffer only slightly.

The following are the most important changes occurring in the organs of the body of an affected animal :—

1. *Fever*, in which the internal temperature rises from 103°, 105°, 106°, and even 107.2°. The external temperature is changeable, the coat stares, but shiverings (*Schüttelfrost*) or muscular tremblings are never observed.

2. *Myocarditis parenchymatosa*, which I regard as the most dangerous element in the disease, occasions an increase in the frequency of the pulse, which varies from 56 to 60 in mild attacks, to 90, 100, and 120 in severe ones.

3. *Superficial catarrh of the respiratory mucous membrane*,

with nasal discharge, slight tumefaction of the submaxillary lymphatic glands, and easily-induced cough.

4. *Erysipelatous inflammation of the conjunctiva palpebrarum*, with œdematous infiltration, especially in the mucous folds between the cartilago-nictitans and the bulb of the eye.

5. *Erysipelatous inflammation of the gastric and intestinal mucous membranes*, which disappears, as a rule, with the lowering of the febrile heat. The digestive mucous membrane is, during the first few days, œdematous and infiltrated with a yellow fibrinogenous fluid, to which the swollen condition is due. Peyer's patches are also involved in the swelling. In the very severe cases in which death takes place during the height of the fever the connective tissue of the mesenteries appears œdematous, and the abdominal cavity contains a yellowish fluid.

6. *Hepatitis parenchymatosa*, with extensive swelling, partial icterus, fatty infiltration and degeneration of the liver substance

7. *Myositis*, to which may be traced the *prostatio virium* and the unsteady gait often observed. Coupled with congestion of the lungs, it also occasions the frequent but not invariably increased frequency of the respiratory movements.

8. *Erysipelas phlegmonosum* of the extremities, and in males of the external genital organs. In mild cases this is, however, often absent.

9. *Congestion of the brain and spinal cord*.—The kidneys and spleen are, as a rule, only slightly affected. Sometimes death takes place about the second or fifth day from the commencement of the disease, and is then the result of cardiac weakness, or in some cases cerebral paralysis. During convalescence, complications of a fatal nature often arise, the most frequent and serious of which is broncho-pneumonia. Continuous intestinal inflammation (diarrhœa) or laminitis, during the second or third week, are likewise occasional causes of death; whilst in some cases the animals perish from the enormous erysipelatous phlegmon in the subcutis and aponeuroses, or as a result of paralysis of the posterior extremities.

The foregoing characteristics will suffice to show the specific and contagious nature of this malady, as well as the fact that it

has nothing in common with pleuro-pneumonia contagiosa equorum. The view held by some authors that both diseases are different forms of primary disease (influenza), is therefore untenable. But in Germany, for many years past, the contagious pleuro-pneumonia of horses has been spoken of as influenza. It would, therefore, be devoid of purpose to apply the same term to the disease under consideration.

Now, it may be suggested that it would be better, inasmuch as the pleuro-pneumonia of horses has so many analogies with the croupous pneumonia of the human subject, as well as with the lung disease of cattle, to dispense with the word influenza altogether, as applied to this disease, and speak of it simply as "pleuro-pneumonia contagiosa equorum." Whilst acknowledging the justice of the principle, I feel bound, on practical grounds, to object to its adoption.

I therefore propose to the German veterinarians that we should name the present disease "Equine Distemper" (*Staupe der Pferde*), and retain for the other disease "Equine Chest-disease" (*Brustseuche der Pferde*). The word "distemper," which in itself expresses nothing further than a "disorder," for scientific purposes can easily be limited to a specific disease. In medicine such words as plague, lues, influenza, have come to be applied to special diseases of the human subject. That the word "distemper" is already used to express a disease of dogs is no argument against my proposition. Human plague (*Die Pest der Menschen*) is another disease to cattle-plague, and no veterinarian would find any difficulty in conceiving "equine distemper" as a different disease to "canine distemper."

[Far from having been confined to the countries mentioned in the preceding lines, this malady has been exceedingly prevalent in this country, and especially in London, during the present year, and has not yet left us. From personal observation, I can testify to the identity of the disease here and on the Continent. It seems somewhat surprising that no communication should have been made to the journals in reference to its presence amongst us.

Professor Dieckerhoff will, I know, pardon my drawing his attention to the fact that Professor Williams has in this country

already insisted on the difference between this malady and epizootic pleuro-pneumonia of horses; for in speaking of the latter in "Veterinary Medicine" he says, "Erroneously called influenza, it has seemingly and for some time taken the place of this affection, from which it differs very materially. The true uncomplicated influenza is a disease of the mucous structures; this affects the serous covering and substance of the lungs."

"Horse Distemper" is a term which has also already been applied to this disease in England—TRANSLATOR].—*The Veterinary Journal*.

CLIPPINGS OF PRACTICE.*

HYDROPHOBIA IN THE HORSE.

BY MR. F. MANS.

I was called to visit a horse, supposed to be affected with colic. At my arrival, he presented no abnormal appearances, except a slight injection of the conjunctiva. According to the statement of the owner, he was making frequent efforts to micturate, which brought on only a few drops of water. The animal looks often toward his flank, and is constantly agitated. To satisfy the owner, rather than to relieve the patient, which I did not believe to be sick, I prescribed some aconite, and left directions that I should be informed if any new symptoms appeared. The next day, in the evening, being called again, I found the animal walking. His appearance has some character of proudness; his walk is hurried and the head is carried elevated. He neighs every instant, and the slightest noise attracts his attention. Returned to the stable, I find his pulse regular and slightly accelerated; the conjunctiva is injected; the respiration normal. Left to himself, he makes efforts to urinate, and constantly bites his right fore-arm, or gnaws the rope of his halter. From this moment I began to suspect hydrophobia.

Inquiring if the horse had ever been bitten by a mad dog, the

* From the official reports of the Departmental Veterinarians of Belgium.

owner, who first denied it, at last said that about two months previously he had a dog which for two or three days had taken no food and had bitten whatever objects were presented to him; this dog, after showing signs of paralysis, was destroyed, but not until after he had bitten the horse on the lower lip.

During that night my patient was much agitated. He bit his manger in his rage; nipped his fore-arm; frequently laid down and got up; constantly trying to make water. A peculiar symptom is, that it was sufficient to slightly press upon one of the bars in the mouth to make the animal fall. He would then roll two or three times from left to right, then rise again and tremble. His gait was always staggering, when he was compelled to walk.

At the post mortem, the stomach was found empty, without lesion, and the laryngo-pharyngeal mucous membrane somewhat injected.

TUBERCULOUS OPHTHALMIA.

BY M. MATHIEU.

This disease has been but imperfectly studied in veterinary medicine. The presence of tubercles in the eye had been observed, but tuberculous ophthalmia has never been described. The four cases observed by the author have enabled him to supply this want, which is of so much the more importance, as it is a sure evidence that phthisis pulmonalis, sometimes so very difficult to diagnose, exists with it.

At the outset, it is manifested by a slight flow of tears, often overlooked. After a while, if the eye is closely inspected, the iris is observed to change color. It becomes greyish, the surface is bosselated, and seems closer to the cornea; its small circumference becomes irregular; the pupil contracts, and soon disappears completely. The iris then forms a complete diaphragm. During the disease the animal suffers intensely. The flow of tears is abundant; the eye-lids remain constantly closed; the iris assumes a yellowish tint, and especially where the tuberculous deposits exist. The cornea is but little changed, and re-

mains transparent until the death of the animal. This tuberculous ophthalmia, in the four cases observed by the author, took place in one eye only, and did not improve under any form of treatment. On the contrary, it grew worse with time. After death, the iris of the diseased eye is found much thickened. Its surface is roughened, and the color of a yellow grey; incised, it shows tuberculous granulations, offering all the changes through which these mioplasm pass in other parts of the body.

Mr. Mathieu says that tuberculous ophthalmia has enabled him to diagnosticate phthisis in a cow, though physical signs of the chest did not show that there was positively anything abnormal in the chest.

VOMITING IN THE HORSE.

BY MR. PUTZEYS.

Being called to a horse which was taken with vomiting while eating grass in an orchard, the author observed that the patient presented all the symptoms of vomiting every time he swallowed some mouthful of grass, or of any other food. Before passing these, a dilatation, varying in size, was easily observed in the inferior part of the *æso*phagus, and still the most minute exploration of the *æso*phageal organs failed to detect the presence of a foreign body. Believing, however, that some body was detained in that canal, the probang was used. It very readily passed down into the stomach, but no improvement of the animal could be observed. The diagnosis was not given up, however, as it was supposed that probably the probang had passed on the side of the foreign substance. Remembering that after each ingestion of a mouthful of food there was a notable dilatation of the cervical portion of the *æso*phagus, and attributing it to an accumulation of matters in front of the foreign body, the author concluded to try the use of these as a tampon. After exciting dilatation of the organ by a few mouthfuls of food, he immediately introduced the probang, using it then as a ramrod, and succeeded at once in pushing the accumulated mass into the stomach. From that moment the vomiting ceased.

ABSCESS OF THE LIVER.

BY M. VAN AUTGAERDEN.

Called to make the autopsy of a cow, he learned that the symptoms she had presented had caused her to be suspected of being affected with pleuro-pneumonia. The cause of the morbid manifestations was found in an enormous abscess, involving the left half of the liver, and which had perforated the diaphragm, which was adherent to the base of the corresponding lung, which, in turn, was hollowed by a cavity of the size of an egg, and was full of pus, and communicated with the hepatic abscess. All around this cavity of the lung the pulmonary tissue was considerably thickened, and presented the character of hepatization.

ACUTE HYDROCEPHALUS.

BY M. STUBBE.

The following case is thus reported by the author: "This patient, a mare, used for heavy draught, nine years old, fed on grass, is said to have been for the last eight days duller than usual, and showed some difficulty in turning.

"On examination, she is noticed carrying her head drooping; the pulse is about normal; the conjunctiva scarcely altered; respiration and mastication slow; defecation rare; *general sensibility increased*. At times, the head is suddenly raised, as if the animal was frightened; locomotion difficult.

"*Diagnosis*.—Cerebral affection, of unknown nature.

"*Treatment*.—Bleeding; drastic drenches; cold applications on the cranium; setons on the neck; stimulating frictions on the extremities; steam baths under the abdomen; stimulating lavements; stabling cool and dark.

"Notwithstanding this treatment, the symptoms increased; the torpor became more marked; the head hung low down, and was raised with difficulty, the animal resting it on the manger; movement is more difficult; general sensibility increased; pulse and respiration remain normal.

“*Prognosis*.—Very unfavorable.

“Diagnosis changed to compression of the brain by neoplasy or exudation.

“Treatment continued, adding tonics and laxative stimulants.

“The third day the animal is found lying down, eyes partly closed, pulse small and accelerated, respiration rapid, short and moaning, conjunctiva injected ; death during the night.

“*Post Mortem*.—Softening of the brain substance (œdema); exudation under the arachnoid of sero-bloody matter ; similar one in the ventricles ; congestion and œdema of the left lung, a part of which is gangrenous ; liver congested.”

PECULIAR BALANCING MOTION OF THE WHOLE BODY.

BY M. SCYLER.

This curious condition was observed in a robust, plethoric animal, without being able to connect it with any organic lesion. It reads as follows: Called in the night, Mr. S. visited the patient at the stable and found him affected with a continued lateral trembling. This movement was limited at times to the anterior, and at others to the posterior parts, while at others it would affect the whole body. During this trembling, the animal tried to support himself against the wall. Was bled, not without difficulty, and received a drastic of aloes and croton oil. The next day the horse seemed perfectly well, having laid down and passed a quiet night. Twelve days later he was again taken with a similar, but more severe, attack, and the same treatment was ordered. Forty-eight hours after, he was free from trembling of the body, but with movement of the legs. The next day the animal got up, and has since continued his work, in apparently perfect health. What was the cause of those symptoms? is the question concluding the report of this unusual case.

TETANUS.

Chloral seems to have been the remedy, *par excellence*, in this disease, in the hands of several veterinarians of Belgium.

Messrs. *Roman* and *Lonhienne* give it in doses of 60 grammes (about 2 ounces) every day, combined with friction on the head and hypodermic injections every 4 hours, in doses of 2 grammes daily.

Roman has given 80 grammes per day, placing his patient in a dark stable, covering him well, giving him plenty of water, and arranging an apparatus to allow him to rest without becoming fatigued (probably slings).

François has also used chloral in a case where all other agents failed to give any relief. He also treated a cow with it, which recovered; her case was one of traumatic nature, supposed to be the result of a fall.

SOCIETY MEETINGS.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

The first regular fortnightly meeting of this Association was held in the lecture room of the Veterinary College, 6 Union Avenue, on Thursday evening last, Mr. M. C. Baker, V. S., 1st Vice-President, in the chair. After preliminary business the following gentlemen were ballotted for and duly elected members: Messrs. E. P. Ball, Henry Kingman, George Kennicks, T. A. Bishop, J. E. Gardner, and W. H. Klock. Messrs. John Henry, Jr., and C. P. Drake were proposed as members.

Professor Osler, of the McGill University, then delivered an address in which he gave an account of his recent visit to England, during which he attended the meetings of the British National Veterinary Congress as the representative of this College. He gave an interesting *resume* of the proceedings of the congress, and paid a high tribute to the zeal and professional ability of the President, George Fleming, F. R. V. C. S., to whom, with Mr. J. H. Steel, the unqualified success of the congress was in a great measure due. He also referred to the pleasing fact that the profession had taken a forward step there in securing status and protection by the passage of the Veterinary Surgeon's bill. In the discussion which followed, Mr. C. J. Allo-

way, V. S., referring to the state of the profession in this province regretted very much that no such protection was given to the profession here. Having been informed that the Lieut.-Governor, by an act recently passed by the local Legislature, possesses discretionary powers in this matter, he therefore moved, seconded by Dr. Wm. McEachran, "That the Principal of this College be requested to call a meeting of the qualified Veterinary Surgeons practising in the Province of Quebec, for the purpose of taking steps to secure the most favorable legislation possible for the protection of qualified Veterinary Surgeons in this Province."

Professor McEachran was then called on to read his paper on a disease which has prevailed in the County of Pictou, Nova Scotia, for the last thirty years. He described minutely the history, symptoms and *post mortem* appearances of the disease, as observed by himself in 1880, and by Dr. Wm. McEachran in 1881. He indicated that the disease was "dropsical" in its character, and promised at a future date, after the present investigation which is being held by the Dominion Government is completed, to lay before the Association all the facts connected with this disease, which is one that has hitherto had no place in Veterinary nomenclature.—*The Gazette*.

The regular fortnightly meeting of this Association was held last Thursday evening, at the Veterinary College, Dr. Wm. McEachran, 2d Vice-President, in the chair. Messrs. C. P. Drake and John Henry, Jr., were elected members and Mr. E. Crundell was proposed as a member. After preliminary business, Mr. Alexander Glass was called upon to read his communication on Influenza. He described a very interesting case, which was complicated by a peculiar rash which Mr. Glass considered to be scarlatina. A lively discussion followed, after which Mr. M. C. Baker, V.S., read an interesting paper on the subject of "Foot and Mouth Disease," a subject which Mr. Baker, being Government Inspector at this port, has paid great attention to. He described fully the history, causes, symptoms, treatment and consequence of this disease, which caused loss not only from the direct loss by death, but also from the loss in condition, quality

and milk. He fully described the various means to be adopted in preventing the introduction of, and stamping out of the disease when present in any country. He was pleased to state that this disease was unknown in Canada at the present time, and with the present efficient system of quarantine was sure that it was next to impossible for this or any other contagious disease to obtain a foothold in Canada. A lively discussion followed the reading of the paper, in which many interesting points were brought out by the members as to the transmissibility to man, the use of flesh for human food, etc. A vote of thanks was passed to the readers of the papers. At the next meeting, Mr. D. E. P. Campbell will communicate a case, subject, "Injuries to the Eye," and Dr. Wm. McEachran will read a paper on the subject of Tetanus.—*The Gazette*, (Montreal).

PLEURO-PNEUMONIA.

PROCLAMATION ISSUED BY GOVERNOR CULLOM.

STATE OF ILLINOIS, EXECUTIVE DEPARTMENT,
Springfield, Ills., November 1, 1881.

In pursuance of the Act of the General Assembly of the State of Illinois, entitled "An Act to suppress and prevent the spread of pleuro-pneumonia among cattle," approved May 31, I, Shelby M. Cullom, Governor of the State of Illinois, do hereby proclaim that I have good reason to believe that pleuro-pneumonia among cattle has become epidemic in certain localities in the States of Connecticut, New York, Pennsylvania, New Jersey, Delaware, and Maryland—viz.: In the County of Fairfield, in the State of Connecticut; in the Counties of Putnam, Westchester, Kings and Queens, in the State of New York; in the Counties of Lehigh, Bucks, Berks, Montgomery, Philadelphia, Delaware, Chester, Lancaster, York, Adams and Cumberland, in the State of Pennsylvania; in the Counties of Bergen, Hudson, Morris, Essex, Union, Somerset, Hunterdon, Middlesex, Mercer, Monmouth, Ocean, Burlington, Camden, Gloucester and Atlantic, in the State of New Jersey; in the County of Newcastle, in the

State of Delaware; and in the Counties of Cecil, Harford, Baltimore, Howard and Carroll, in the State of Maryland; and I hereby, as required by said Act, prohibit the importation of any domestic animals of the bovine species into this State from the aforesaid Counties in the States of Connecticut, New York, Pennsylvania, New Jersey, Delaware and Maryland, after the 10th day of November inst., unless accompanied by a certificate of health properly signed by a duly authorized veterinary inspector. Any corporation or individual who shall transport, receive or convey such prohibited stock shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than \$1,000 nor more than \$10,000 for each and every offence, and shall be liable for any and all damage or loss that may be sustained by any party or parties by reason of the importation or transportation of such prohibited stock. (Sec. 4 of Act approved May 31, 1881.) In testimony whereof I hereto set my hand and cause the great seal of State to be affixed. Dated at the City of Springfield, the day and year above written.

By the Governor:

S. M. CULLOM,

HENRY D. DEMENT,
Secretary of State.

CORRESPONDENCE.

POISONING FROM STRYCHNIA.

Mr. Editor: In the October number of the REVIEW appeared an article entitled "A Case of Poisoning from Strychnia," by W. H. Hoskins, D.V.S., which, in my opinion, is open to some friendly criticism. In the first place, was it good policy for Dr. Hoskins, when he suspected strychnia poisoning, to tell the owner of the horse to wait until the next morning for him to make a diagnosis? Strychnia poisoning demands *immediate* diagnosis and attention, I think, if we would save our patient. I also cannot agree with the symptoms and post mortem lesions, which are described as being so typical of a case of strychnia poisoning. Delafond, in his *Traité de Thérapeutique Générale*, says: "In herbivorous animals, no matter whether suspended in water or in pill form, strychnia produces its effects quickly; the animal

becomes uneasy, tries to walk about, its muscular movements are retarded, abrupt, and intermittent, and you have contractions of the muscles of the extremities. The pupil is not dilated, the general sensibility is increased, and if you touch the animal, or expose it suddenly to a bright light, or if a sudden noise is heard, immediately the abrupt spasms present themselves. The respiration remains regular, although it is interrupted from time to time by the spasms; the pulse and the beating of the heart is accelerated; the digestive and excretory organs do not show anything remarkable; the animal retains his intelligence, sees, hears, and obeys. In small doses, these effects soon pass away. If the dose is large, the same symptoms manifest themselves, but they are more intense and of longer duration. Its toxic effects show themselves rapidly on the muscles of the entire body, especially on the extensors. The contractions, while they last, are very intense, and are succeeded by a period of rest, to be followed in its turn by a contraction more prolonged than the first; then a new rest occurs, during which the animal seems surprised, but this is of short duration.

“The continued spasms are followed by violent tetanic contractions of the masseter muscles; the eyes move in their sockets, and the pupil dilates. You cannot touch the animal, or make the least noise, without exciting the convulsive movements, which are best likened to the effect of an electric battery applied to the motor nerves. The respiration is irregular, accelerated, and intermittent; the conjunctiva, the mucous membranes of the nares, buccal cavity, and white parts of the integument, take on a violet hue. The intervals of remission are very short; several attacks follow each other quickly, when soon rigor becomes general, the thorax remains immovable, respiration ceases, and the animal dies from asphyxia. Death takes place after the third, fourth, or fifth tetanic spasm, and generally in seven or eight minutes after the manifestation of the first attack.” The *post mortem* appearances, according to the same authority, are: “*Strychnia never leaves any traces of its having touched the intestinal mucous membrane.* The other lesions are similar to those consequent upon death from asphyxia, no matter in what way the strychnia has been introduced into the system.”

Now in regard to the symptoms and lesions described in the article referred to—profuse salivation, twitchings of the muscles of the neck, low temperature, intense abdominal pain, congestion of the lungs and bronchial tubes. The symptoms and lesions which the Doctor has so well described point to a case of idiopathic tetanus, rather than to a case of strychnia poisoning. The absence of the protrusion of the *membrana nictitans*, also the elevation of the tail, are especially noticed. These symptoms are not always present in a case of tetanus—a patient now in the hospital does not show either—but by careful observation, a peculiar clicking sound can be heard when a motion is made towards the animal's head, showing that there is partial displacement of the membrane; the tail is carried naturally, but the rigidity of the muscles, dilatation of the nostrils, and other symptoms consequent upon tetanus, are well marked.

I have written this, Mr. Editor, not with the intention of proving the diagnosis made erroneous, but with the hope that, if I myself am in error, others may avoid making the same mistake.

I am, sir, yours respectfully,

ROB'T H. HARRISON, D.V.S.,

House Surgeon, A. V. H.

Nov. 10, '81.

OBITUARY.

THOMAS C. COWHEY, D.V.S.

The Alumni Association of the American Veterinary College has once more to lament the death of one of her young members. Dr. Thomas C. Cowhey, after a lingering illness, died on the 26th of October, at the age of twenty-one years and a few months. Young, and loving his profession, Dr. C. would, no doubt, have made his mark in the special line of medicine which he had embraced. He had won his diploma, which was delivered to him only in March last, by honorable diligence and hard study. At the time of his graduation, he received the gold medal granted by the Board of Trustees of the College for the best general examination, and he subsequently served with credit as House Surgeon to the Hospital Department of his *Alma Mater*, during which time he had already shown symptoms of the disease which has taken him away from a large circle of friends.

IN MEMORIAM.

THOMAS C. COWHEY.

NEW YORK, November 17th, 1881.

We, the members of the Medical Association of the American Veterinary College, resolve as follows:

Whereas, In His inscrutable wisdom and unerring Providence, it has pleased God to remove from his relatives and friends our most beloved associate and member, THOMAS C. COWHEY, of St. Louis, Mo. Therefore, be it

Resolved, That we profoundly and sincerely lament his loss; and that to his parents—in this, their hour of deep sorrow and bereavement—we tender our mutual sympathy and commiseration. And therefore be it

Resolved, That we send a copy of these resolutions to his parents; and, also, that we publicly express our grief and condolence by inserting a copy in one of the leading papers of St. Louis and the AMERICAN VETERINARY REVIEW. And be it

Resolved, That these resolutions be written in full in the regular minutes of this Association.

W. H. MARTINET,	}	<i>Committee.</i>
F. J. HANSHEW,		
W. H. ARROWSMITH,		

NEWS AND SUNDRIES.

ARMY INTELLIGENCE.—The resignation of Veterinary Surgeon Martin Jordan has been accepted, to take effect Nov. 30, '81.—*Army and Navy Journal*.

PLEURO-PNEUMONIA is again reported in Germantown and Delaware County, Penn.

KING KALAKUA, when in this part of the country recently, bought several Kentucky thoroughbred horses and colts, which will be forwarded to Honolulu.—*Prairie Farmer*.

A DAIRYMAN in Halifax had five children down with scarlatina. He, however, continued to dispense milk to his customers. Of eighty-two families he thus supplied, forty-five were attacked with scarlet fever.—*American Cultivator*.

YESTERDAY, October 20, a Jersey heifer, belonging to Col. Taggart's herd, *aged 13 months and 24 days*, was delivered of a finely developed solid heifer calf. The mother was dropped August 20, 1880.—*Public Press*.

TEXAS contains over 5,000,000 head of cattle, over 1,000,000 of horses, and about 6,000,000 sheep. In cattle raising it stands first among the States of the Union, in horse raising second, and in sheep raising third, if not second.—*Cul. and Country Gent*.

AUGUSTUS STORR, of Brooklyn, N. Y., has presented to the State of Connecticut a well-stocked farm, with suitable buildings, situated in the township of Mansfield, seven miles north of Wilimantic, as a foundation for a State Agricultural School. The gift has been accepted by the State, an annual appropriation made for the support of the school, and a Board of Trustees appointed.—*Prairie Farmer*.

M. DE LACERDA has made in Brazil some experiments, showing that permanganate of potash is an almost certain antidote for the bite of snakes. M. de Lacerda has not as yet tried its efficiency on himself, but in the case of thirty dogs on whom he experimented, only two died under exceptional circumstances,

and all whom he did not treat with the injection of permanganate of potash died in the usual way.

A LIVE STOCK ASSOCIATION for Illinois is on the tapis. The object is the mutual benefit of breeders, feeders, and raisers of live stock. The organization proposes to include breeders of all leading kinds of stock—horses, cattle, sheep, and swine—whose interests, instead of being at variance, are mutual and identical. The only contest between those who raise different breeds of live stock—horses, cattle, sheep, or swine—should be a friendly rivalry for producing the best and most profitable animal for the farmer to raise. The *Prairie Farmer* wishes the new movement the highest success.—*Prairie Farmer*.

TRICHINÆ IN SOUTHERN HOGS.—The investigations of Dr. J. T. Payne, under the auspices of the New Orleans Auxiliary Sanitary Association, go far toward establishing the claim that Southern-raised hogs are exempt from trichinæ. From the report of Dr. C. B. White, Sanitary Director of the Association, published in the New Orleans *Medical and Surgical Journal* for September, we find that Dr. Payne has examined up to August 1st, 3,026 hogs. In only three did he find trichinæ, and these three hogs came from St. Louis, Mo.

OVARIAN TUMOR IN A HEN.—At a recent meeting of the St. Louis Obstetrical and Gynæcological Society, reported in the *Obstetric Gazette* for August, 1881, Dr. Engelmann exhibited an ovarian tumor taken from a hen. There were two tumors; one was rather larger than a large-sized orange, and the other smaller, about the size of an egg. It was a hard mass, in very distinct layers of brick red and orange color, but apparently not forming a distinct tissue, containing no blood vessels. The centre of the tumor did not seem to be an organized mass, but a hollow cyst, surrounded by a dense, conglomerate, and inorganic mass. Comparatively speaking, it was a very large tumor, its weight being considerably greater than that of the body of the majority of hens.

CHARBON.—The seat and centre of the charbon disease, or "mountain malady," is in Auvergne. The Pasteur process of

vaccination has been tried in several of the mountainous districts, and with the fullest success. M. Pasteur announces that he is occupied in the arrangement of a little laboratory for the commercial preparation of vaccine. No loss will be incurred in the interim, as the disease is limited during winter. He will prepare forty-four gallons of "virus," sufficient to vaccinate one million animals. It will be forwarded in special glass tubes, and the cost will be one halfpenny per head of stock. Up to the present thirty thousand animals—sheep, oxen, cows, horses, etc.—have been vaccinated, and with success, in the sense that they have been saved, while others at their side have succumbed.—*American Farmer*.

A PROLIFIC MULE.—The Arabs have a proverb to the effect that "when the mule has young, men will become women and women men." The mule does not, as a rule, reproduce its kind. In this hybrid between the horse and the ass, the power of reproduction is lost; at least, the instances are exceedingly rare in which it is fertile. The London *Live Stock Journal* recently published the following, in which the fertility of a mule is well authenticated: "One of the curiosities in the Paris Jardin d'Acclimation is a mule, named Catherine, which was purchased several years ago, while on her way through Paris with a Barb stallion and a foal by this horse, to the exhibition at Vienna. When purchased by the Paris society she was again in foal to the same horse. Since she has been in Paris she has thrown two more foals (by a jackass), which are named Salem and Atham, and which may be seen every day drawing the small tramway cars from the Jardin d'Acclimation to the gates of Paris. Her fifth and last produce is a four-months colt foal by the Barb sire referred to above, and has been named Kroumir.—*Prairie Farmer*.

NORTHWESTERN VETERINARY COLLEGE.—We are pleased to notice, in connection with the Minnesota College Hospital, there is to be a veterinary school where students will receive a full course of instruction in the different branches of veterinary medicine and surgery, extending over three winter sessions of six

months each. The branches of chemistry and physiology are taken with medical students of the College Hospital, where they are also allowed the privilege of taking the medical course required. The faculty are to consist of Rich. Price, V.S., F. W. McLellan, V.S., of St. Paul; H. J. Burnash, M.D., S.R.C.P., and C. C. Lyford, M.D., V.S., Minneapolis.—*St. Paul and Minneapolis Pioneer Press.*

AMERICAN VETERINARY REVIEW,

JANUARY, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 386.)

VII. *Treatment*.—Prophylaxy ought to be the principal treatment of cracks. It is not always easy, however, to prevent them, and it becomes important, therefore, to treat them as soon as they appear. One ought at least to try to prevent them from becoming complete and deep. This form of treatment may be called the hygienic, as it is not properly curative, and so long as the crack is not yet completely formed, by this means the animal may be kept at work as if everything was normal. Curative treatment is that which is applied to the deep or complete disease, more or less complicated, and it most commonly consists in removing that portion of the wall which bruises and irritates the tissues beneath, and in equalizing the wound. In general, there is no necessity for haste in operating, the hygienic treatment being often sufficient to obviate the need of serious operations. The distinction between the hygienic and curative treatment is not however, always definitely marked, and quite often the two modes of treatment must be combined, both the hygienic and curative being necessary.

The *prophylactic* treatment consists specially in the application of tonics, with the object of preventing the hoof from drying. Its normal hygroscopic condition must be preserved, and it

must be prevented from taking up too much of the dampness of the ground upon which it travels, as well as from losing that which keeps up its flexibility. At times it must be rendered more moist and, according to the requirements of the case, recourse must be had to hoof ointments and other greasy substances, glycerine, and astringent poultices. At the same time the shoeing must be carefully attended to; the shoe must not be too heavy nor too wide, and should be secured by nails of a proper size.

The *hygienic* treatment has for its first and principal indications to prevent the solution of continuity from increasing, from extending through healthy structure, and especially to new hoof, as this is secreted by the coronary band. The borders of the cracks must, therefore, be prevented from separating in the movements of dilatation of the foot. The normal suture of the wall not being produced by the natural process, or at least, producing it only in keraphyllocele, which is likely to be as injurious as the crack itself, the borders of the crack must be brought together artificially.

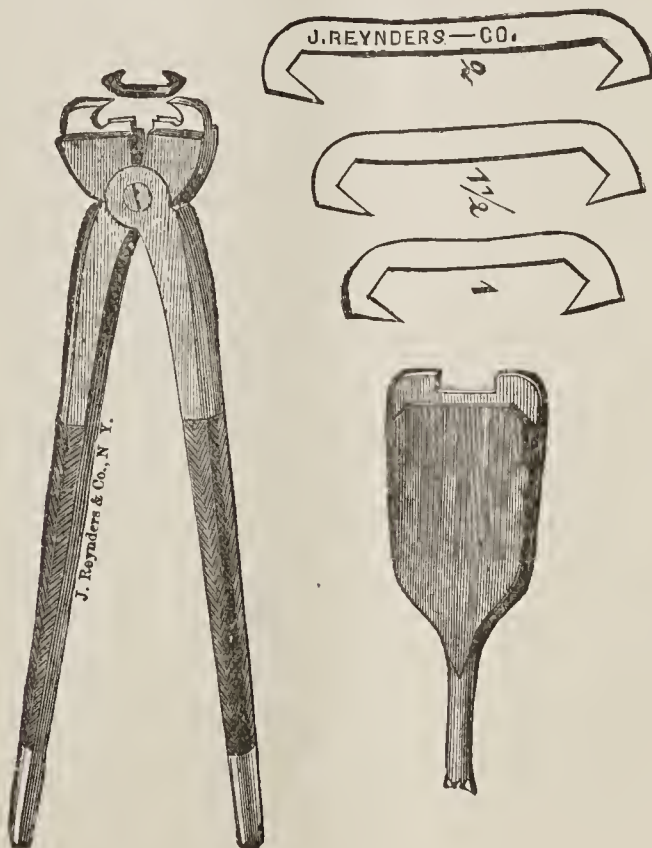
It has been supposed that this could be done with the putty of Defay's, a mixture of gutta percha (2 parts) and gum ammoniac (1 part), introduced into the well-cleaned fissure in a solution, and pushed in as deeply as possible by a warm iron plate or a spatula. This putty is excellent for superficial cracks, but is insufficient to bring the borders together when the fissure is somewhat deep, or especially if it is irregular and sinuous.

A better way, at least for toe crack, is that which consists in suturing the edges of the solution of continuity by metallic clasps, which immobilize the hoof. This mode is always preferable to circular ligatures of wire or cord, which have the effect of interfering with the natural elasticity of the hoof. Clasps only fix the hoof locally, and are an old means of treatment, having been used by Solleysel and Garsault.

It was advised to perforate the horn through and through, with a small punch, and pass a wire, which was bent over the crack, or twisted together at the ends. The same authority recommends the driving of a nail through both edges, and securing it tightly, as in the application of the nails of the shoe. This treatment was

recently recommended by Haupt, Lafosse and Rey. The first of these professors takes an ordinary nail, with a small head, drives it through one edge of the crack, so as to come through the other at an equal distance from the point of entrance; the nail being thus driven to the head the borders of the crack are then brought together, and the nail secured in the ordinary way. Two or three of these clasps are employed, according to the extent of the crack. Lafosse makes a groove on each side of the fissure, about one centimeter from the border, in a direction transverse to that of the fibres of the wall, which limits the passage of the nail. The nail is then introduced and secured as in the first instance. Rey makes a track for the nail first, by drilling a hole through the borders of the crack. The animal must be cast during these operations.

The best kind of clasps or hooks are undoubtedly those of Vachette, which require special instruments for their application, but give a real solidity to the means of fixing the position of the parts. The clasps are all prepared, made of strong wire, bent at



both extremities, and slightly sharp inwardly. (fig. *a*.) These are secured on the foot by a special nipper or forceps, (fig. *c*.) in the notches made on the wall with a special cautery (fig. *b*); this cautery has its extremities flattened, the width of the clasp apart from each other. The forceps used to secure these is strong; its branches are flattened from side to side, and grooved inwards, and sufficiently apart from each other, while it is open, to receive the clasps between its border; these branches, with the clasp, are exactly fitted to the notches made in the wall with the cautery. It is sufficient to press the branches of the forceps, to close the teeth or extremities of the clasps, and bring firmly together the borders of the cracks. The number of clasps varies according to the case under treatment.

A very simple mode of effecting reunion of the borders of the crack is that of Hartmann. It consists in applying upon the wall a sheet of iron, adapted to its outside, and secured on the foot by two small screws.

Clasps are of a certain utility for toe cracks, but they often fail in quarter cracks, on account of the thin condition of the wall, which is particularly well marked in some feet. If the living tissues are encroached upon, the clasp may give rise to complications, and still it is in that region that the effects of the motion of the hoof must be prevented, and where immobility is essential, to prevent the separation and spread of the edges of the crack.

Castandet has indicated a mode of treatment which has proved very successful, and which may be applied to both toe and quarter crack, where the fissure of the wall extends from the coronary band to the lower border of the foot. It consists in making a groove at about one centimeter on each side of the crack, which in depth extends to its bottom, which, when reached, is white. If the solution does not go to the lower border of the foot, these grooves are made obliquely, and so as to meet together at their lower termination, and form a V shape. Thus the crack cannot increase, and it grows down without injury to the soft tissues. Castandet, after this operation, cauterizes the coronary band.

The transversal groove, recommended by Levrat, which cuts the tissues in two and extends beyond the crack on each side

about three centimeters, which goes down to the soft tissues of the foot, and not beyond them, has for its object to diminish the effects of percussion produced by the contact of the foot with the ground. It however, does not prevent the edges of the fissure from separating, as the groove of Castandet does. It is chiefly useful when there is separation of the wall, or false quarter. At times a transverse groove has been made to prevent an incomplete fissure, starting from the plantar border from spreading to the coronary band. According to Hartmann, a single hole drilled through the wall is, in these cases, sufficient.

Shoeing is of much assistance in the hygienic treatment of cracks. In toe cracks, the toe should be spared as much as possible while the heels are lowered by paring, or by the application of a shoe thicker at the toe, or by the removal of the calks at the heels. While Defays holds that the shoe ought to lie close and tight to the plantar regions of the crack, Hartmann, on the contrary, advises the paring of that surface at the toe, so that the shoe cannot rest on the crack, and recommends the application of two clips on each side of the toe.

In quarter cracks, it is recommended to lower the toe, to save the bars and the frog; and when the crack is incomplete, and not accompanied with lameness, Defays recommends not to lower the diseased quarter, and to have the heels resting well on that branch of the shoe, which shall be thick and straight. Schrebe advises a calk on that side. If the crack is deep, with excessive lameness, and deep lesions, the quarters and heels must be pared down as much as possible, and a bar to be then put on, resting on the frog, if need be. An ordinary shoe with a thick branch may be sometimes employed.

As part of the hygienic treatment, we may consider the means recommended to increase the secretion at the coronary band. It is known that a slight irritation at that part of the foot is accompanied with an increased secretion of hoof, which is sometimes sufficient to give rise to a new growth of healthy horn. One of the most common methods is to slightly cauterize the coronary band with the iron. This was already known by old practitioners, who employed an S cautery; but they committed

the error of burning the hoof too deeply, instead of simply cauterizing the coronary band. Solleysel speaks of the cauterization of the band. Garsault mentions only the burning with three Ss across the crack. Such cauterization could have no useful effect, and the deep application of the cautery might be followed by serious complications. For these reasons Lafosse objected to them. In our days it is abandoned, and the coronary band only is touched by the cautery; Castandet and Rey also employ it. Chemical canteries have also been recommended, nitric acid by Laguerriniere, and more recently by Lafosse.

Putty of corrosive sublimate and ointment of oxide of mercury are also in use, but have no marked advantages. Blisters prove very beneficial, and also turpentine, as recommended by Lafosse and Rey, and the oil of Gade by Maury. Defays advises the putty of gutta percha, which is also used to conceal the clasps.

The curative treatment is necessary whenever any complication attends the crack. If it is recent, antiphlogistics and rest should be first tried; cold bathing, blisters combined with hygienic treatment may then be sufficient. A single groove at the upper part of the crack, near the coronary band, is often sufficient, or the removal of a V shaped portion of hoof, extending more or less deeply according to the condition of the crack, care being observed to avoid the growth of vascular granulations between the edges of the crack. There are cases where it is not necessary to remove the segments of the hoof entirely down to the soft tissues, but only to thin them down and to apply over it a dressing of oakum, secured by several turns of roller bandages. In all cases a bar shoe must be applied to relieve the pressure on the quarter where the crack exists. This is principally recommended by Prevost, Girard and others.

If there are deep lesions of the sub-horny tissues, a piece of the wall must be removed, and the operation for radical cure be performed. It is an old operation, by which all diseased tissues are exposed. As little of hoof as possible is removed. In operating, two grooves will be made alongside and at some distance of the solution of continuity. The wall between is removed so as to expose

the podophyllous tissues from the coronary band down to the sole, care being taken to avoid the tearing of the structure of the coronary band, and the diseased tissues are then removed. If the podophyllous tissue, it is excised with the sage knife; if the bone is carious, it is scraped with the drawing knife. The whole is then dressed up with a shoe having the toe thinned down, and extending somewhat beyond the border of the foot.

The cicatrization does not take place from the coronary band alone, but also from the horny secretions of the podophyllous tissues. The repair is then quite rapid. The first dressing is removed after eight or ten days, and if everything goes on well need not be changed more than once a week.

The animal is not to be put to work until the hoof has obtained a certain consistency.

The operation for quarter crack is similar, except that only one groove is required in front of the crack, the tissues being exposed as in the operation for the removal of the lateral cartilages of the foot.

(To be continued.)

TRICHINÆ,

A LECTURE DELIVERED BEFORE THE STUDENTS OF THE
AMERICAN VETERINARY COLLEGE.

BY F. S. BILLINGS, V. M.

(Continued from page 396.)

In order to offer even a very condensed sketch of the evolution which these parasites undergo, it is better to begin with the non-matured or muscle form.

The parasite, in this form, limits its abode entirely to the striated, or motary muscles of the autositic organism. They have not been met with in the non-striated muscles or in the purely adipose tissue.

This seems to be the universally accepted opinion, and is in general strictly true. Nevertheless, in the investigations which we have ourselves recently made, we have frequently found the

encapsuled trichinæ in the midst of purely adipose tissue, *between the muscle-fibres of fattened hogs*; never, however, in the purely adipose tissue which lies *upon* musculature. In the cases in question I vainly searched for any indications of the sarcolemma of the muscle-fibres, but the parasite was enclosed in a form of capsule, nevertheless.

The encapsulated parasites may be met with in the striated muscles of all parts of the body. They may be found in the digital muscles; those of the abdominal walls; of the extremities; the eye; the ear; the larynx and pharynx; the tongue; the œsophagus; the diaphragm. The heart, however, appears to be a favored locality, for they have only been found in its flesh in very isolated cases. (Leuckart, Fiedler.) In making examinations of œsophageal musculature of a rabbit fed with trichinous pork, I was much struck with the abruptness with which one met with trichinæ. In passing in review a microscopic section of the œsophago-cardiac portion of the stomach, when one passed from the musculature proper to the stomach, to that of the œsophagus, in fact, trichinæ could be seen where the latter interlaced or intruded itself between the fibres of the former. But in no case could I find a parasite in the non-striated fibres. These parasites are not, however, equally distributed over the musculature of the autosite, but on the contrary, seem to have their favorite places of abode. They appear to have a predilection for the muscles of the anterior part of the body. Among these, those of the tongue, larynx, pharynx, eye and masticatory muscles being especially favored. The muscles of the body are more favored than those of the extremities. Very few are found in the inferior portion of the caudal appendage of any animal. In the extremities, the parasites are found to be more abundant when the muscle-fibres begin to lose themselves in their tendinous extension, than in the body of the muscles.

The following interesting and valuable statistics with reference to the dispersion of the trichinæ over the organism, are taken from the "Miththeilungen am der thierarztlichen Praxis im Preussischen Staate."—1877-78, p. 99.

Microscopic preparations having an average length of 2 ctm.,

and a width of 1 ctm., were taken from the flesh of several hogs by which trichinæ had been constituted.

80 specimens from hog No. 1 gave the following :

a.	From pillars of diaphragm....	12	trichinæ.
b.	“ muscles “	4	“
c.	“ “ of larynx.....	1	“
d.	“ “ “ ribs.....	}	None.
e.	“ “ “ tongue.....		
f.	“ “ “ neck.....		
g.	“ “ “ eye and overarm....		

60 preparations from swine No. 2 gave the following :

a.	From pillars of diaphragm.....	10	trichinæ.
b.	“ muscles “	6	“
c.	“ laryngeal muscles.....	2	“
d.	“ intercostals.....	}	None.
e.	“ tongue musculature.		
f.	“ muscles of eyes and overarm and		
g.	“ neck.....		

40 preparations from swine No. 3 gave as follows :

a.	From pillars of diaphragm.....	40	trichinæ.
b.	“ muscles “	25	“
c.	“ laryngeal muscles.....	4	“
d.	“ intercostals.....	6	“
e.	“ tongue musculature.....	7	“
f.	“ muscles of neck, eye and overarm...	2	“

40 preparations from swine No. 4 gave as follows :

a.	From pillars of diaphragm.....	40	trichinæ.
b.	“ muscles “	30	“
c.	“ laryngeal muscles	10	“
d.	“ intercostals.....	10	“
e.	“ muscles of tongue.....	6	“
f.	“ “ overarms.....	2	“

More striking, however, than the dispersion of the parasites over the various muscles of the organism, is the extreme multitude which have been estimated as infesting one organism. Leuckart estimates that in some of the cases which have come to his observation, that a single gramm of flesh lodged from 1,200 to 1,500, and assuming the muscles of a man to weigh forty pounds,

the number of these parasites infesting a human organism, at such a ratio, would sum up some *thirty millions*.

In Zenker's case—to be especially noticed later—Fiedler calculated that the woman must have lodged some *ninety-four millions*, and Cobbold assumes that *one hundred millions* of these encapsulated parasites may sometimes infest one organism at the same time.

Leuckart says that no one would look upon the above as exaggerated estimates, who, like himself, has found some 60 trichinæ in 10 mgms. of muscle.

In a report of the Chicago Academy of Sciences, noticed in the *Boston Medical and Surgical Journal*, Vol. LXXV., it was estimated that one cubic inch of pork, examined under their auspices, contained 10,000, and that a person consuming the ordinary amount of such meat used at a single meal, would introduce into his organism more than 1,000,000 of these parasites.

*District Veterinarian Rauch (Wittenberg), found numerous trichinæ in the muscles of a hog. Of 300 microscopic preparations, they failed in but three. In some preparations he found 30 in one focus; in others but five or six examples. As in 70 specimens, weighing one gramm, 350 trichinæ were found, one pound would contain 175,000, and if the flesh alone of a swine weighs 100 pounds, it would, at such a percentage, contain 17,500,000 trichinæ.

In many cases, however, the parasites are much less frequently met with, and one has to search through many microscopic preparations before meeting any, and these are only isolated examples. When sufficient time has elapsed from the invasion of the musculature and formation of the capsule, the same may be recognized with the naked eye as small white specks; such muscles appearing as if sprinkled with grains of fine salt or white sand. The calcification of the capsule begins about the fifth month after the invasion of the muscles.

In pork, however, this is not the case, the capsules never presenting this appearance, which must be due to the action of the fatty oils upon the lime, as an examination with the polariscope

*Preus. Mittheil, 1877-78, p. 100.

reveals the presence of calcareous salts to a minor degree in the capsule.

The capsules do not always present the same form to the eye of the observer. Sometimes they are well elongated, while at others they are more round, the extremities at both ends of the capsule being almost entirely wanting. Their average diameters may be said to be 0.4 mm. in length and 0.26 mm. in breadth. They not unfrequently contain two, and sometimes three parasites.

(To be continued.)

A LARGE JABOT.

By J. ED. McNICOL, D.V.S.

— — —
NEW YORK, November 28, 1881.

On Sunday, the 20th inst., I was called to look at a peculiar case. The subject was a dun-colored gelding, 16 years old, 15½ hands high. He had the following history: Since the epizootic of 1872 he has had some difficulty in swallowing. When he took a couple of mouthfuls of water he was obliged to raise his head to swallow it, and seemed to have considerable difficulty in doing so. Still, he went on pretty well until the 7th of last July, when he was taken with vomiting of saliva and water, and remained in that condition for some little time, but finally getting to work again on the 9th of September, though never doing very well, and evidently not in a thriving condition.

On Thursday, November 17th, he was again taken with vomiting. At that time the upper part of the neck was very much depressed, and, after a great deal of straining, he would cough up and eject a couple of quarts of saliva and water.

I saw him on the following Sunday. He was then slobbering a great deal; his pulse and temperature were normal, and the respiration 18; a large swelling existed on the left side of the trachea, extending down about 12 inches, when it apparently ended; but below this, and on the right side, there was also a swelling, continuous with the first, and extending from 8 to 10

inches further down. The trachea was pushed out of position, the right jugular being under the trachea, which was in such a position that the edges of the rings could be felt underneath. When water was offered to him he drank greedily, and in about two or three minutes retching would commence, and, after coughing, he vomited the most of it. Pressure on the enlargement and towards the pharynx would produce vomiting.

I made no diagnosis, but requested Professor Robertson to go and see him. The Doctor was of the opinion that it was due to a stricture of the œsophagus, or to a jabot.

At this time the pulse and temperature remained normal. Before midnight he received a drink of water, which served to set him crazy, causing him to plunge and attempt to stand almost on his head, a position which he would assume and keep for some time. He finally died on the night of the 22d.

Dr. Robertson and myself made the post mortem, with the following results:

The œsophagus, beginning at 6 inches from the pharynx to within 8 inches of the stomach, was distended, and contained three quarts of finely masticated food, the dilatation increasing in size from above to the thoracic cavity, where it attained its greatest size, being at least 3 inches in diameter, and narrowing suddenly to within 8 inches of the stomach. On removing the contents, I found patches of ulceration on the surface, near the posterior end, and some also on the anterior part of the œsophagus.

Ø BRONCHITIS VERMINALIS IN CALVES.

By W. A. THOMAS, V. S.

I was called, last week, to see some calves, 30 miles from here, near the town of Willer. I learned from the gentleman that the disease was *strongylus micrurus*. He stated that the calves were shipped from Wellington, O., to Chicago, where he purchased them about four weeks ago, 65 in number. When I reached his place half of them were dead. I think that all of

those that remained were diseased. I found them very much emaciated, with some exceptions; occasionally coughing, with expectoration of mucus; muzzle dry, with small sores, which were pitted or scabbed; watery or purulent discharges from the eyes; in the advanced stages dropsical swellings beneath the jaws; patient weak; respiration hurried; appetite good, until a few hours before death. In an autopsy of one, I observed the following lesions: All the lower portions of the lungs were hepatized, as well as a great part of the remainder. I could not find any cysts or tubercles. I found in the bronchia and trachea a large number of the parasites in a frothy mucus. I found, also, a few parasites in the intestines. The heart was filled to its entire capacity with firmly coagulated blood. I cut open the ventricles, and withdrew the clots, which showed a complete cast of these cavities, as well as of the auricles, and all of the vessels to some distance from the heart. The clot extended for about one foot in the posterior aorta, and to this were attached clots from the collateral arteries.

As our authors claim such great tenacity of life in the strongyle, will the editor please give a remark in the REVIEW as to the possibility of destroying them by inhalation?—[Fumigations are often recommended, but according to Steel “it is highly probable that parasites can stand a more severe dose of the medicines than the calves can.”—ED.]

CHRONIC SCROTAL HERNIA — OPERATION — RECOVERY.

By C. W. CROWLEY, D.V.S.

In October, 1879, I was requested by Mr. A. W. Brown, of Collinsville, Ill, to visit his stock farm and examine a valuable eight-year-old stallion. I made the visit, and found the animal with a chronic scrotal hernia, which had first made its appearance about two years previous. It had continually increased in size, in warm weather, up to the time of my visit, when it reached to within a few inches of the animal's hocks, dangling to and fro, striking the legs at each step.

My opinion at the time was that he would have to be castrated by the covered operation. The owner, however, decided not to do anything with him until the following spring.

I was called again in May, 1880, and found the tumor slightly increased in size. The owner then wished to have him either castrated, or have something done to make him less unsightly and left a stallion. I then decided not to castrate him, but to remove a part of the scrotum.

The animal was then put on a very short diet until the third day, when he was cast. Immediately on turning him on his back the bowels slipped into the abdomen, the testicles slipping well into the inguinal ring. A clamp was then placed on the scrotum, as close up to the testicles as possible (it taking one over a foot in length to encompass it). The animal was then allowed to rise. The sloughing commenced a couple of days after, and continued for about six or seven days, when all came away, ordinary antiseptic dressings being used. About a month after the operation, when all inflammation had subsided and the scar nicely healed, the horse took moderate exercise, at which time the scrotum extended down about as far as it would in a perfect state, but its lateral dimensions were greater. It has retained that size since, and the horse has been both driven and used in the stud.

STRANGULATED SCROTAL HERNIA—ASPIRATION —RECOVERY.

By the Same.

In November, 1878, I was requested to see a stallion owned by Mr. Ignacio Vasquez, a horse that he had purchased a short time previous to send to his ranch in New Mexico. I found the animal in great distress, and suffering from a strangulated scrotal hernia. I first administered a dose of tincture of opium and linseed oil. When the horse laid down again his legs were secured and he was turned on his back, in which position I could give him a more thorough examination. Finding that there was considerable gas in the imprisoned bowel, I decided to puncture,

as is done in human practice. An exploring trocar was used, and in about fifteen minutes after the escape of the gas, and immediately after the horse making a struggle, the bowels slipped back with a slight gurgling noise. The horse recovered without any more interference on our part. I afterward learned that the animal had two previous attacks, but got over them without any assistance whatever.

EDITORIAL.

COLLEGE OF VETERINARY SURGEONS OF AMERICA.

In the last number of the *REVIEW*, we published a notice from one of our exchanges of the establishment of a new Veterinary College, to be known as the *Northwestern*, and which is to be opened in connection with the Minnesota College Hospital. To this new school we tender our best wishes, and gladly welcome its appearance, as one of the recognitions of the need which is felt by our people of a better training of our veterinarians. This country is large enough to support liberally still more institutions of this kind, and any which shall start with the resolute intention of doing good and thorough work will in a few years reap the reward of their labors in the popular appreciation of the labors of their alumni. Of the members of the Faculty, we are acquainted with but one, Prof. C. C. Lyford, M.D., V.S., and in the deserved repute attained by this gentleman may be found a sufficient guarantee that the profession will never be disparaged by those whose diplomas shall bear his name.

There are in the foundation of veterinary colleges in the different parts of the United States points which must be considered aside from the mere fact of furnishing the people with men of education to attend their diseased stock. It is the consequent influence which must necessarily be acquired by the profession at large. Heretofore, and up to a few years, graduated veterinarians in America were of foreign origin. It is only within the last 17 years that an American could boast the possession of an American diploma. Now, however, the increase of veterinary schools gives

good promise that home-born and home-bred practitioners will soon be found in numbers sufficient to fill the almost empty ranks of our profession.

Another important question will also, we believe, arise from this. It will be the necessity and possibility of the formation of a large and influential association, which will be exclusively constituted of regular practitioners, and which may in its organization include similar principles to those embodied in the Royal College of Veterinary Surgeons of England. This Association ought to elect a Board of Examiners with whom should be lodged the exclusive right of granting the diploma, which should be the only degree identifying and qualifying the regular practitioner. The State schools ought to be in the nature of preparatory institutions, whose students, while receiving an acknowledgment of their standing, ought not to be recognized as full veterinary surgeons without passing a final examination by the Board of Examiners which would then constitute what might be called the *College of Veterinary Surgeons of America*.

We feel assured that if such an association were founded, and such organization chartered, much good would result. First, the various titles and degrees in vogue at the present time would be reduced to a single and common title, and there would be no more V.S.'s, V.M.'s, D.V.S.'s, D.V.M.'s, etc.—but a single universal and comprehensible American title, whatever that might be. Again, how much more thorough and careful the education would necessarily be, when the question of success in a school would be measured by the number of its graduates, and each institution would exert itself to deserve the repute which should give it a preference over its fellows among those seeking their degrees. As a natural consequence, a general similarity in the curriculum of studies would be established in all the schools, requiring a proper amount of preliminary education, a point which in the present condition of affairs would be looked for in vain.

The fact, as it seems to us, is that the veterinary profession as it exists now in the United States ought to form such an association at once, and choose their Board of Examiners without needless delay.

There can certainly be found to-day a sufficient number of qualified men in the country entitled to confidence, who would discharge faithfully and acceptably the duties indicated. Let them be appointed ; let all the veterinary schools in the country prepare young men for the degree which this Board will be authorized by law to grant, and we have no doubt much good will be derived by the practitioner in his professional standing, and by the profession at large.

We cannot overlook again another benefit that would result from the formation of such a body. It is the possibility of arriving at the solution of problems which have baffled for years the veterinary profession of Europe, and which already in this country calls for interference. It is the prevention of quackery, or at least the prevention of its increase beyond its present extent.

We all know that previous to the establishment of Veterinary Colleges in America there were no opportunities offered for study to those inclined to follow veterinary practice. The result has been that many took up the matter as a business, and entered the profession and became successful and competent practitioners through their own exertions. But self-made men as they remain, they are deprived of many of the privileges which are granted to the regulars, and have been held somewhat aloof by the whole body of regular veterinarians. Equal to the graduates in many points, there is yet a barrier between them which neither is willing to seek to overcome, much to the detriment, we are persuaded, of both parties.

Could not, then, the College of Veterinary Surgeons of America, by the regulations of its organization, be empowered to give these gentlemen a special examination and grant them a proper recognition ? If England, after many years, has seen it to be advisable to do something analagous to this ; if she has thought proper to grant recognition to many practitioners which were under special conditions, it seems to us very reasonable that the same might be done on this continent, where the profession is yet young, and where the regulars and irregulars are yet so few in numbers, and consequently more likely to come to satisfactory arrangements.

We know that many difficulties are in the way, but we do not think them insurmountable, and we sincerely believe that if the veterinarians now practicing in the United States will come together, such an association can be easily formed. It is with the hope that the subject may be considered by the profession, and with the desire to have it discussed, that we have made these remarks, and that we offer the pages of the REVIEW to those who may be desirous of expressing their views on this important subject.

VETERINARY ETHICS IN ADVERTISING.

Although it may be a difficult and delicate point to decide, in many instances, just what constitutes a breach of medical ethics, yet there is a line beyond which we may not go without committing a flagrant violation of what might be called our "moral code."

We do not propose to speak, in this connection, of the practices of the "horse-doctors" and quacks, who recognize no authority of common rights, nor display any of that modest dignity which should characterize the conduct and bearing of the professional veterinarian.

It is to those within the ranks of the profession to whom our remarks are directed, and to the younger members in particular. After graduation, the question arises, how shall I endeavor to make my acquirements known to the public, and by what means may I hope to elicit a share of patronage?

Judging from what we daily see, it would seem that the methods employed to "establish a practice," are almost as universal and varied as are the individuals so striving. Many of these methods are highly objectionable, and do not serve to bring aught but reproach upon the institution granting the diploma, and upon the person holding it.

Not giving the matter the careful consideration it deserves, or a too ambitious greed for practice, will in all probability explain the mistakes made by young men just leaving college.

Have they not been taught the *dignity* of their profession?

Then the fault is in the teaching and lives of their instructors. We can scarcely believe this to be the case.

Where, then, is the difficulty, and how can we remedy it? Let the answer be in the form of a statement as to what means can be employed without doing any injustice to the profession or its members.

An advertisement in a paper, that simply states your profession, residence and office hours, cannot reasonably be objected to. Cards bearing only the same, are unobjectionable, and may be presented in person. These are as far as one can go in this direction, between a conscientious physician and a quack.

Advertisements of specialities, of secret medicines, the issuing of circulars and posters, or newspaper puffs, cannot be too strongly condemned and discouraged by every one who has the interests of the profession at heart.

We do not intend to speak here of charges, of the duties of consulting surgeons, &c., &c. It is only to bring the subject of advertising before the younger members of the profession, that these remarks are made, and it is to be hoped a timely suggestion will correct the errors of some, and prevent their recurrence in others. One had better fail in procuring practice than to obtain it by resorting to the methods employed by patent medicine men and unscrupulous charlatans.

ARMY VETERINARY REPORTS.

INSPECTION OF HORSES AND MULES FOR ARMY SERVICE.

BY A. A. HOLCOMBE, D.V.S., United States Army.

Horses and mules for the use of the army are now generally purchased by contract, instead of in the open market, as was the custom at one time. When a contract is made, it is customary to insert in the body of the document an article providing for the inspection of the animals presented for purchase, as follows: "The horses (or mules, as the case may be), herein contracted for shall be examined and inspected, without unnecessary delay after being delivered, by a person or persons appointed by the United

States; and after such inspector shall have certified that they are in all respects as required by this contract, they shall be received and become the property of the United States."

The specifications for the government of inspectors are found in General Orders No. 17, from the A. G. O., dated March 1st, 1876. The requirements are: "Cavalry Horses.—To be geldings, of hardy colors, sound in all particulars, in good condition, well broken to the saddle, from (15) fifteen to (16) sixteen hands high, not less than (5) five nor more than (9) years old, and suitable in every respect for cavalry service.

"Artillery Horses.—To be geldings of hardy colors, sound in all particulars, in good condition, square trotters, well broken to harness, from (15) fifteen to (16) sixteen hands high, not less than (5) five nor more than (9) nine years old, and suitable in every respect for artillery service.

"Mules.—To be strong, stout, compact animals, sound in all particulars, in good condition, well broken to harness, not under (14) fourteen hands high, not less than (4) four nor more than (9) nine years old, and suitable in every respect for the transportation service of the army.

"When work-horses are to be purchased they should be sound in all particulars, fifteen and one-half hands high and upwards, strong built, well broken to work in harness, not less than four nor more than nine years old."

These specifications, or such parts as apply to the animals being contracted for, become a part of the contract and presumably are the instructions by which the inspectors are to be guided.

The height, condition and gaits may be determined by any one, as may also the question whether the animal is broken to saddle or harness. Which the "hardy colors" are, the regulations do not say, and I believe the question is left to the individual opinion of the inspectors. It seems to be the general practice to reject white, dun and cream-colored horses, although it is not generally claimed that they are not hardy horses. Major Arnold, now of the 6th Cavalry, in his "Notes on Horses for Cavalry service," says the desirability of color is as follows: "dark bay, bay, brown, iron-gray, strawberry-roan, dark sorrel, black and

chestnut. Cream color, dun, white and pi-colored horses have little hardihood."

Perhaps the determination of the age is not a matter of any great importance, seeing that most men acquainted with horses can generally tell whether or not the animal has passed the prescribed age. If in any case there is doubt, the inspector can, of course, reject the animal as unsuited for the service. I have seen horses thirteen years old bought for cavalry service in which the mouth was not deceptive, and I have seen "bishoped" mouths deceive the inspector. But these instances must be comparatively rare unless the inspector is unusually deficient.

Under the specification of "and suitable in every respect for cavalry service" must come the question of *conformation*, a very important one, and one that must necessarily be intimately associated with the remaining specification "sound in all particulars." That this last specification out-weighs all others in importance, will not be questioned by those acquainted with the work of our cavalry horses, and the general tendency to certain diseases which exists to so marked a degree among American horses. To determine these questions in the purchase of cavalry horses, would seem, to the Veterinary Surgeon, to require the knowledge of the veterinarian and the experience of army service. The same questions, only in lesser degree, are at stake in the purchase of artillery and work-horses, and mules.

In so far as I know, there are no regulations governing the appointment of inspectors of horses and mules. They have sometimes been appointed by a special order of the Department commander, and in other instances they have been named by a depot Quartermaster, who was designated to receive and pay for the animals bought.

That inspectors are always appointed because of their especial fitness to perform the duties of the office, is not apparent. In fact, some inspectors have been entirely ignorant of what constitutes defective conformation, while nearly all those I have known have but the most superficial knowledge of what constitutes an animal "sound in all particulars."

One would logically infer that a cavalry officer might properly serve on a Board of Inspectors for the purchase of horses for

cavalry service. So, also, might the artillery officer inspect artillery horses and the Quartermaster mules and work-horses. But what opportunity a young officer of infantry has to learn of the qualities necessary in cavalry and artillery horses I am not aware. Nevertheless, they are occasionally made inspectors.

In some instances civilian employes in the capacity of wagon masters, who are considered to have some knowledge of animals in general, are appointed inspectors; occasionally they constitute the entire Board. But which of the inspectors named above know what constitutes soundness? Are any of them acquainted with ailments of animals used in army service and at the same time capable of detecting them? To the student of animal diseases the answer is self-evident and scarce needs recording—*not one*. Let me offer some statistics on the subject, gathered during the last three months of 1880 and the first month of 1881.

During these four months I inspected 542 animals, all of which had seen some service. But 253 of these were inspected for frost bites only, and no record was kept of their other complaints, leaving 289 whose records appear below. Of these 289 animals, 217 were diseased: 128 being horses and 89 mules. Among those 217 animals were 267 cases of disease, as follows:

<i>Diseases.</i>	<i>Animal.</i>	<i>No.</i>	<i>Remarks.</i>	
Sidebones.....	Horses—64—	In both fore feet.....	41	
		In right foot only.....	15	
		In left foot only.....	4	
		Not recorded.....	4	
	Mules—40—	In both fore feet.....	25	
		In right foot only.....	5	
		In left foot only.....	4	
		Not recorded.....	6	
Low ringbones...	Horses—21—	In both fore feet.....	9	
		In right foot only.....	7	
		In left foot only.....	2	
		Not recorded.....	3	
	Mules— 2—	In both fore feet.....	1	
		In right fore foot only.....	1	

High ringbone...	Horses—	1—	In right hind foot only.....	1
	Mules—	1—	In right hind foot only.....	1
S.b.&Lrb.together.	Horses—	4—	In both fore feet.....	1
			In the right foot only.....	3
	Mules—	1—	In the left fore foot only...	1
Spavins.....	Horses—	23—	In both hocks.....	2
			In left hock only.....	13
			In right hock only.....	7
			Not recorded.....	1
	Mules—	27—	In both hocks.....	7
			In left hock only.....	11
			In right hock only.....	8
			Not recorded.....	1
Hock lameness...	Horses—	1—	In left hock only.....	1
	Mules—	3—	In both hocks.....	1
			In right hock only.....	2
Curbs	Horses—	1—	In both hocks.....	1
Stringhalt.....	Horses—	6—	In both legs.....	4
			In left only.....	1
			In right only.....	1
	Mules—	4—	In both hocks.....	2
			In right only.....	2
Periostitis.....	Horses—	6—	In os coronæ, fore feet.....	5
			In right fore foot only.....	1
	Mules—	4—	In both fore feet.....	2
			In left only.....	2
Lame in front, sim-				
ple causes.....	Horses—	6—	In both feet.....	4
			In left foot only.....	1
			In right foot only.....	1
	Mules—	4—	In both feet.....	2
			In left foot only.....	2
Broken knees....	Horses—	1—	In left only, gunshot wound.	1
Knee-sprung.....	Horses—	6—	In both legs.....	4
			In right leg only.....	1
			In left leg only.....	1

Splents, large.	Horses—	2—	In both legs.	1
			In left leg only.	1
	Mules—	1—	In both legs.	1
Thickened fetlocks.	Horses—	5—	In both fore legs.	1
			In left fore leg only.	1
			Not recorded.	3
	Mules—	1—	In right hind leg only.	1
Ossifications.	Horses—	2—	In tendons left fore leg.	1
			In tendons left hind leg.	1
	Mules—	1—	In tendons left fore leg.	1
Thickened tendons.	Horses—	2—	In both fore legs.	1
			In right fore leg.	1
	Mules—	2—	In both fore legs.	2
Caries.	Mules—	1—	In os pedis, right fore foot.	1
Cocked ankles.	Horses—	2—	In both fore legs.	1
			In both hind legs.	1
	Mules—	1—	In both hind legs.	1
Quarter cracks.	Horses—	2—	In both fore feet.	1
			In left only.	1
Fistula.	Horses—	3		
Ophthalmia.	Horses—	2—	In both eyes.	1
			In right eye only.	2
Blind.	Horses—	3—	In both eyes.	1
			In right eye only.	2
	Mules—	5—	In left eye only.	4
			In right eye only.	2
Thick wind.	Horses—	2—	Laryngeal.	2
Club foot.	Horses—	2—	In both fore feet.	1
			In left fore foot only.	1
	Mules—	2—	In both fore feet.	2
Shoulder lameness.	Horses—	1—	Right.	1
Founder.	Horses—	1—	Chronic.	1
Sprained loins.	Mules—	1—	Rendered useless.	1
Paralysis.	Mules—	2—	Upper lip, left side.	1
			Both hind legs, partial.	1

As will be observed, there are more cases of side bones than any other diseases among both horses and mules. That 50 per

cent. of all the horses diseased should have this affection of the fore feet affords, to my mind, an instructive commentary on the defects of the inspection.

First, let me give the ages of these 64 horses, and then make my deductions :

<i>No.</i>	<i>Yrs. old.</i>	<i>No.</i>	<i>Yrs. old.</i>	<i>No.</i>	<i>Yrs. old.</i>
6.....	6	2.....	11	1.....	16
7.....	7	6.....	12	1.....	17
12.....	8	3.....	13	2.....	18
5.....	9	2.....	14	5.....	20
2.....	10	3.....	15	1.....	25
Unobserved.....	6				

Just 50 per cent. of the cases had not passed the tenth year!

Now most cavalry horses are bought in the latter part of summer or in the autumn. If they are sent to the various regiments for which they were purchased, it is so late in the season that but little or no campaigning is done until the next year, consequently they have no hard work for several months after entering the service. Generally, some are retained at depots as a reserve, and are issued as required, so that a large part of the horses bought for cavalry purposes each year receive but little actual work until the summer following their purchase.

In breeding horses in that part of the west where cavalry horses are most often bought, it is customary to have the foals dropped in the spring of the year. I believe, from the observations I have made on this point, that this is true of about 90 per cent. of all the horses raised. Very few spring colts shed their corner incisors early enough in the season to permit the inspector to pass them as five-year-olds. Autumn colts, on the other hand, have these teeth well up at this season of their fifth year, and so are not refused on account of want of age. With the exception then, of not more than 10 per cent., cavalry horses do no service until they are six years old or over.

The majority of the horses which were the subjects of the above reported inspections, had been sent to the Fort Leavenworth depot for disability, recuperation, or by reason of dismount-

ing infantry companies. Consequently the per centage of diseased animals is unusually large.

Furthermore, all had had opportunities for becoming diseased or disabled from actual service (wear and tear). But a reference to the above table shows that about 10 per cent. of the cases of ringbone were but six years old. This, then, would limit them to not more than one summer's campaigning. About 11 per cent. were seven years old, 19 per cent. eight years old, eight per cent. nine years old, and three per cent. ten years old, the greatest per centage appearing at eight years old. Or, to sum the matter up, 50 per cent. of the diseased horses had sidebones, and 50 per cent. of the sidebones, or 25 per cent. of all the diseased horses, had not passed their tenth year: or, in other words, admitting that all had entered the service at five years past, which is by no means probable, half of the sideboned horses had seen on an average, but two and eleven-sixteenths years of service. Another important fact in connection with this disease is, that it is the young horses that are disabled by it, while in the older ones incapacity does not necessarily follow its development. Of course, the presence of sidebones in all instances serves to impair the elasticity of the gait, causes more or less stumbling and detracts from the subject's value for cavalry purposes.

As was stated in the table above, 41 out of 64, or over 64 per cent. of the cases had the disease in both fore feet; 15, or more than 23 per cent., in the right foot only, and but four in the left fore foot. I suppose it is beyond question by any one that cavalry service of necessity tends to develop disease of the fore-feet by reason of the weight which the animal is compelled to carry. Naturally, sidebones would be expected as the result of the concussion. That the right foot is more often affected than the left is no doubt to be accounted for on the ground that most horses, in galloping, lead with the right foot, thereby subjecting it to a greater amount of concussion than its neighbor.

Now, what seems to me the important question is, Are all these cases of sidebones developed as the results of the cavalry service? If the specification "sound in every particular" is observed by the inspectors, the disease evidently develops in a large per

centage of cavalry horses during a comparatively short service.

But is it possible, with the inspectors generally appointed, to get only such horses as have no symptoms of this disease? Without hesitation I answer emphatically, No; it is not possible. Of all the inspectors, excepting only the Veterinary Surgeons, of whom I have had any knowledge, not one has been competent to detect the disease at all. Some, perhaps the majority, have never even heard of it. Neither do horse-men, breeders, dealers, etc., know what the disease is.

That sidebones is a very prevalent defect in horses and mules in the western States, is evident from the large number of cases which appear in the animals presented to the Government for purchase. The animals we are called upon to inspect for cavalry purposes are particularly selected by the contractors, with an eye to soundness of the fore feet; and yet I think it safe to say, judging from an inspection of about 2,000 horses, that at least 20 per cent. have sidebones of various sizes. If I mistake not, Veterinary Surgeon Glover of the English Army Veterinary Department remarked on the frequency of this disease, among the animals presented to him for inspection, on the occasion of his visit to St. Louis in the early part of 1880.

That the great cause for the frequency of this disease in this part of the country, is due to the breeding of the poorest mares, is susceptible, I think, of the most ready proof. Mares rendered almost useless for purposes of labor from the presence of large sidebones, ringbones, spavins, and blindness as a result of periodic ophthalmia, are considered, not only the most available but those best adapted for breeding purposes. As a consequence a large per centage of colts are congenitally diseased or inherit strong predispositions to these and similar diseases.

Considering the prevalence of this disease of sidebone, the inference is that inability on the part of inspectors to detect it must, in part at least, account for the frequency of its occurrence in cavalry horses. Nor is this an unwarranted inference, for I have seen many cases of sidebones passed by inspectors and the affected animals sent to do service. That they can rarely remain serviceable for more than a short period of time, especially in our

rougher western country where the majority of the cavalry does duty, needs no explanation. Some of them break down as soon as put to duty, while others stumble, get lame, are sore in front from fever of the feet or chronic periostitis; develop low ring-bone, navicular arthritis and other complications.

Now, what is true of sidebones is true of nearly all other diseases, i. e.: non-professional inspectors are not capable of detecting them in many instances. And that other diseases which seriously impair serviceability are of frequent occurrence also, is seen from a reference to the above table.

The mules inspected, it will be observed, presented fewer cases of sidebones than did the horses, 45 per cent. of the diseased ones being affected with it.

Like the horses, more than half of them (62 per cent.) had both feet affected; unlike the horses, the right foot, in so far as a record has been kept, was scarcely more prone to the disease than the left. But it is important to note that sidebones do not so surely impair the usefulness of the mule as is the case with the horse. Having only their own weight to carry (pack and saddle-mules excepted) concussion is comparatively slight, the growth of the bones correspondingly slow, and the effect; less disastrous.

Respecting saddle-mules it is in place to chronicle the observation I have made, that this disease is very frequent in these animals, and I cannot doubt but that it is due to the carrying of the teamsters.

Sub-periosteal deposits on the os coronæ (low ring-bones), are very much more frequent in horses than in mules, appearing in 16 per cent. of the former and but a fraction over two per cent. in the latter. High ring-bones are of infrequent occurrence in either the public horse or mule.

Of the diseased animals reported in the table, more mules were spavined than horses—37 per cent. of the former to 18 per cent. of the latter. In the horses, both legs were seldom found diseased, while the mules presented about 25 per cent. of these cases.

In 56 per cent. of these diseases in the horse, the left leg alone was the seat of the disease. The left leg in the mule was also more often affected than the right by about 10 per cent.

Of other diseases there was a considerable variety, but only a few cases of any one.

To conclude, the effectiveness of the cavalry and transportation services of the army must depend, to a very considerable extent, on the stability of the horses and mules, and their serviceability depends largely on their soundness. Of course it is not to be supposed the specification "sound in all particulars" is to be technically construed, else there would be but few animals capable of successfully passing a professional inspection. But it is of the utmost importance that the animals passed be practically free from disease. The diseases that are well-marked are, of course, readily detected by any one of common acquaintance with horses; but these are not the ones likely to be presented for inspection. It is the diseases but imperfectly developed, the diseases that present only the premonitory symptoms and as yet cause no lameness or other readily perceived signs, that are beyond the detection of the best informed non-professional inspectors.

To illustrate, take some of the most common diseases. Where, for instance, is the inspector, unless he be a veterinary surgeon, competent to detect cataract in the earlier stages of its development? And yet it is quite often met with in the horses presented for inspection. In some of these cases, as is well-known, evidence of the existence of the disease is to be detected by the use of the ophthalmoscope alone. Is there a non-professional inspector capable of making the examination? The same difficulties exist regarding the detection of all the many diseases that cause lameness. In the earlier stages of their development, they readily escape detection except at the hands of a veterinary surgeon, for at first they rarely cause lameness, and the non-professional generally consider an animal sound in the limbs, unless he is lame or shows some well-marked evidence of disease.

That which is true of external diseases holds good also in the internal disorders. The lesions of old pneumonias and pleurisies; of heart diseases and the milder forms of brain affections; the chronic gastric and intestinal disorders, and the first stages of emphysema of the lungs are conditions, the detection of which cannot possibly be accomplished by any but the veterinary surgeon.

Of course many good horses enter the service, no matter who does the inspecting, and we consequently find a very fair per cent age of them in the cavalry service that have reached a good age. I have seen quite a number from fifteen to twenty-five years old, and it is not unreasonable to infer that the majority of them have been in the service anywhere from five to fifteen years or more. Is it not possible to greatly increase the percentage, in the army, of these horses of long service? If it is to be accomplished at all, it will be through the employment of professional inspectors. Unlike the laity, the veterinary surgeon looks beyond the beauty of outline, which is too often the only recommendation an animal has, for those qualities upon which the serviceability must depend. On the other hand the smooth, round-built handsome-appearing animal is the one that mostly commends itself in the eyes of the inspector unacquainted with animal diseases.

I do not know if others have made the observation, but in the inspection I have made the handsome animals are the ones most likely to prove, on a close inspection, either diseased or so defective in local conformation as to demand their rejection.

It is the handsome horses of the service which are generally the first to leave it; the old ones in service have had other qualities which secured their retention.

The amount of money yearly appropriated by Congress for the purchase of cavalry and artillery horses is \$200,000. The average price paid for horses during the past two years has been \$130 per head. The sum appropriated would therefore purchase about 1,500 horses. In the cavalry and artillery, taken together, there are about 7,000 public horses. It seems necessary then, to replace about 21 per cent. of the horses of the service yearly. Now, when it is considered that the light artillery has but little active duty to perform in time of peace, and that only a portion of the cavalry does campaign duty each year, the percentages of loss are certainly heavy. The yearly loss from death and usual wear and tear of the service, of companies not in the field, ought not to exceed on an average, with proper veterinary medical attendance, 5 per cent. If this estimate be true, and but half of the cavalry do field duty each year, the yearly losses to this part of the cavalry reach 37 per cent. But even the average loss to

the whole service is excessive; it ought not be more than 10 per cent. instead of 21.

To obtain such a result seems at least within reason, and the first step in that direction will be a proper inspection of all animals presented for purchase. There seems to be no good reason why this has not already been done. A general order providing for the appointment of inspecting boards, and defining their composition, would place the matter on its merits and determine whether the veterinary surgeon's qualifications do not render his services even more valuable here than in the hospitals.

It undoubtedly would be economy on the part of the Government to purchase no animal until inspected and passed by a competent veterinary surgeon.

About 10,500 horses and the same number of mules are kept in the military service. The loss of animals during the year was 2,056 horses and 1,281 mules. The proceeds of sales thereof deposited in the treasury in the year, and not available under existing laws to replace those died, lost or sold, was \$80,207.97. The average cost of 1,438 cavalry and artillery horses purchased during the year was \$125.12. Total was \$179,926.71. The cost of 1,006 mules and 29 draught horses for the trains purchased was \$117,074.80, the average being for mules \$111.07 each, and for draught horses, \$138.79. Thus the sales of animals worn out produced about one-fourth of the cost of replacing them. —Extracts from the *Quartermaster General's Report for the fiscal year ending June 30th, 1881.*

ADDRESS.

THE VETERINARY PROFESSION.

BY DR. W. McEACHRAN.

The session of the Veterinary College was opened by an address from the Principal, Dr. McEachran, when there was a good number of students present and also some members of the medical profession.

After welcoming the students, Dr. McEachran proceeded to

point out the new departure which had taken place in connection with the veterinary profession during the last few years. In consequence of the spread of contagious diseases amongst cattle, whereby the food supplies of the people were seriously affected, various Governments had been led to pay greater attention to veterinary science, which had been one of the last, if not quite the last, to emerge from the darkness and superstition of what are called the dark ages; the village farrier having been looked upon, until comparatively recent times, as possessing all the knowledge necessary for the cure of diseases amongst the brute creation; though in ancient times, as far back as Homer, considerable importance was attached to the curative treatment of the lower animals. But at the beginning of the present century, veterinary colleges were established in various countries in Europe and many left the medical profession for the veterinary. Since that time the science had made great progress; and extensive and valuable additions had been made to its literature. The veterinary profession required equal intelligence, education and scientific knowledge with the sister profession; and it was a mistake to regard it as a degree or two below the so-called liberal professions, as it was regarded when ignorance, cruelty and superstition held sway. In some respects it was more difficult than the medical profession, which had but one animal to deal with, capable of speech; whilst the veterinary profession had to deal with the whole family of domestic animals; some of which might have intelligence, but lacked the power of expressing it. The importance of the profession had never been felt more than during the last two or three years. He then referred to the enormous losses sustained in England and the United States through the neglect of the science and the destructive consequences of pleuro-pneumonia, the foot and mouth disease, and rinderpest. Referring to the spread of these diseases in the United States, he said that if they once crossed the Alleghany Mountains, the matter would be beyond the Government's control. The American Government had done nothing towards the support of the veterinary colleges, or the recognition of the graduates, except recently in the changed order of things in connection with the

army. Up to a few months ago any groom or farrier was eligible for the position of a Veterinary Surgeon in the army. Now only qualified members of the veterinary profession were admitted, and they were raised to the rank of officers; whereas before they had only the rank of sergeant. There had also been a veterinary department added to the Department of Agriculture; and it was the intention of the Department at Washington to appoint port inspectors, as in Canada. Amongst the individual States, Illinois had taken the initiative in organizing a Veterinary Department, and other States were following. He represented Canada as treating the profession better than either the United States or Great Britain, though he did not say that even here the Government gave all the assistance it should. In Germany, France, Russia, Norway and Sweden large sums were voted annually for the support of the veterinary colleges. They were, in fact, Government institutions. He proceeded to give a detailed statement in reference to the colleges in European countries, and concluded with some practical advice to the students, in which he spoke of the importance of their studying pathological anatomy, chemistry and histology, also of the importance of the microscope. For the practical application of the knowledge thus obtained they would have to study materia medica and therapeutics. He advised them to attend all the lectures, take notes of them, and to read up the subjects treated of in the lectures from the text books. He also urged upon them the duty of kindness towards the lower animals, and that they should never inflict unnecessary pain upon them.

Dr. Osler, at the close, addressed a few words to the students. He said that during the past five years a change had come over the public mind in reference to the veterinary profession; but he said its importance was realized much more fully on the European continent than in England or the United States. As to the status of a veterinary surgeon, it depended entirely upon himself, and in regard to this he could not do better than recommend them to follow the example of Dr. McEachran, as to the way in which he carried on his daily work, and conducted himself in every relation in life.—*Montreal Gazette*.

AMERICAN VETERINARY COLLEGE HOSPITAL.

REPORTS OF CASES.

BY R. H. HARRISON, D.V.S. House Surgeon.

THE EMIGRATION IN INFLUENZA.

A large number of cases have been admitted and successfully treated in the hospital during the prevailing epizootic; many complications have been noticed, among which have been severe epistaxis, continuing for some time after convalescence had taken place; purpura hemorrhagica also in a few cases. A passive form of laminitis has been observed in several instances, but has proved readily amenable to treatment in the shape of cold poulticing. Spinal troubles have not been so frequent or severe as they were during the last spring and fall. Lung diseases, also, have not been as frequent a sequence. Intestinal complications, indicated by colicky pains, anorexia and purging, have been very common; the œdematous and rheumatismal forms also have been frequent. The form of treatment that has been carried out has been stimulation, and, of course, treating special symptoms as they presented themselves. A special treatment, which has been designated the "Emigration of Influenza," has been of signal service; this has consisted in altering the hygienic surroundings of the patient as much as possible, removing him from the stall where he was to another better lighted and ventilated, or placing in a large box when possible, giving especial attention to the cleanliness of the stall and bedding, keeping the animal warm and comfortable, and not allowing any discharges to accumulate on his body, watching his appetite, and taking care that any remainder of the food should be immediately removed. Cases which have been treated outside, and sent here with the history that the animal had a perfect loathing for food of all kinds, and on examination presented a high temperature, 105-6-7°, pulse 60 or more, weak and small, together with great stupor and debility—these cases, time and again, when placed in a commodious box stall, would at the first meal eat from three to four quarts of oats, and the following morning the temperature would be found to be

normal, the pulse stronger, the eyes clearer; in short, it would be difficult to recognize the patient as the same animal of the previous day. This has also occurred in patients who contracted the disease in the hospital; in one box they suffered from complete anorexia, but when removed to another the change seemed at once to show its beneficial effect. In the treatment of cases outside, the same result was obtained, and it was especially noticeable that when a patient was removed from a cellar stall to one on the upper floor a perceptible change for the better was apparent; even while in a cellar stable if they were removed from a single stall and turned loose in a box. These facts, proven by repeated experiments, show that change of locality and good hygiene prove a valuable auxiliary in the treatment of this disease. Also, in diseases of the air passage in many cases when animals have been sent to us, often coming from stables where everything is kept scrupulously clean, the same change would be manifest, the patient at once beginning to eat, and thereby helping nature to tide over the attack. It would be well, therefore, to attend to these conditions and make them paramount. Medicinal treatment would have to be but slight, and our patients would get well more quickly, and leave our care in a much better condition to resume their work.

SUPPURATIVE PERIOSTITIS.

An interesting and unique pathological condition, which has not been described, as far as I know, in English or French veterinary literature, has occurred in a horse recently discharged. It arose as a complication of trephining the sinuses of the head. The complications and accidents spoken of in different works on surgery as a rule in this operation, arise from lack of skill on the part of the surgeon, also when the animal is improperly confined. The trephine which has been commonly used is of large diameter—of late it has been recommended to use as small an instrument as possible, one whose calibre will only admit a small rubber pipe for the purpose of irrigation, claiming that the repairing process

is by far more rapid and that it leaves a cicatrix scarcely noticeable.

The case referred to was a valuable running horse, a sorrel gelding, eight years old; he was affected with a discharge from the left nostril and an accumulation of pus in the sinuses of the same side. He was trephined first at the nasal sinus, an ordinary instrument being used, which was of large diameter, and had coarse teeth; a day or two after the superior maxillary sinus was opened with a small instrument having fine teeth. The latter, as soon as the accumulation of pus ceased, closed up quickly, and left but a slight cicatrix. The nasal opening at first appeared to be doing finely, closing rapidly. Two days after cicatrization had taken place, a slight swelling was observed an inch from the opening and nearer the median line, very tender to pressure and rapidly increasing in size. This proved to be an abscess, which was opened and cleaned by antiseptic injections of carbolic solution; this abscess closed, but another formed in close proximity to it, which was opened and pus evacuated; also two small pieces of bone were removed. Inserting a probe, it was found that these abscesses connected with each other, and with the nasal opening, by fistulous tracts, and that the bone was denuded of its periosteum; injections of carbolic solution were forced through the tracts for a few days, which resulted in the cleaning of the tract leading from the nasal opening to the first abscess. Another tract formed, however, from which another abscess resulted within an inch of the eye, on a horizontal line with the last, was opened as before, together with the fistula; finally another abscess and tract formed near the external canthus of the right eye. This was opened and a minute piece of bone removed, after which the parts healed without difficulty. As a result a sort of traveling periostitis was set up, proceeding from the left to the right, which gave rise to bony deposit along the line of the fistulous tract, more marked where the abscesses had formed than in other places. The probable explanation of this condition is, that a minute fragment of bone, detached by the trephine, had imbedded itself under the skin, and had tried to work its way out, being prevented from escaping by the too rapid closing of the wound.

FOREIGN BODY IN THE FETLOCK.

A roan gelding, purchased six months ago by a livery stable keeper, was noticed at the time to have a thickening on the outside of the near hind fetlock, but, as the animal was not lame, it passed unnoticed until a few days ago, when, apparently increasing, the animal was sent to us for advice and treatment. An abscess was in the process of formation at the seat of the induration, and hot poultices were applied. This treatment was carried out, and when the case was next under observation the abscess had ulcerated through—the discharge was thin and peculiar to diseased bone. Introducing a probe, a foreign body was detected, which at first was thought to be a detached piece of bone. Withdrawing it with a pair of forceps, it proved to be a piece of a large nail, an inch long; the after treatment consisted merely in keeping the parts clean. An interesting fact in this case is, that for six months, although used for hacking work, the animal had never been noticed to take a lame step.

USE OF PEPSINE.

In several cases when no food would be touched by patients, the administration of pepsine in half ounce doses twice a day has been followed by speedy return of appetite, when other remedies have failed. The greatest objection to its use is that the pure article is very difficult to obtain. In a case of hydro thorax following pleurisy, its effect was wonderful; the patient had eaten nothing for several days. After several doses of pepsine, the appetite returned, and convalescence took place. At the time when it was given the animal was almost in a state of marasmus.

INTUSSUSCEPTION IN A MONKEY.

A large male Arabian monkey (*Cynocephalus hamadryas*) was lately seen at Central Park; he had appeared unwell for a few days, refusing his food; he was lying crouched up in his

cage, seemingly in much pain, and unmindful of the caresses lavished upon him by his female. When taken out of his cage he was unable to stand or sit erect without assistance; marked debility was present, with a very anæmic condition; his countenance was pinched, anxious and pallid; the conjunctival and buccal mucous membranes were of a yellowish tinge, and the breath was very foetid; the action of the heart was very feeble, and the extremities very cold. On percussion over the thoracic walls nothing abnormal was detected; manipulation over the region of the liver seemed to give rise to pain. A diagnosis was made of tuberculosis of the liver, and a grave prognosis was given; brandy and milk was ordered every hour, together with warmth and careful nursing. He died the same night, and was brought here for examination. On post-mortem the cause of death was found to be an intussusception of the small intestines. The strangulated parts were intensely congested, but gangrene had not set in. Tubercular deposits were found extensively in the spleen and liver—somewhat in the lungs, and a few tubercles were scattered throughout the mesentery.

CORRESPONDENCE.

“EPIZOOTIC CELLULITIS, OR PINK-EYE.”

Editor Review :—In the November issue of the REVIEW appeared an article under the above title from my friend, J. C. Myers, of Cincinnati, Ohio. To the same number I contributed a short paper on “Epizootic Influenza in the West.” If I may judge from the history of the disease, in its spread from the original focus of the present outbreak, and the symptoms as delineated by Dr. Myers, I cannot doubt but that we both have had the same disease to deal with. But is it “Epizootic Influenza,” as the profession understands the complaint so termed, or is it “Epizootic Cellulitis?” Evidently it is not proper to use either term indiscriminately in designating a disease. If there is such a disorder as “Epizootic Cellulitis,” it must necessarily differ from “Epizootic Influenza.” If the outbreak now affecting our

horses is "Cellulitis," I have been woefully mistaken in calling it "Influenza." If I have committed so grave an error I am anxious to learn why it happened, in that I may guard against a repetition in the future. I have no doubt but that Dr. Myers entertains the same sentiments in regard to the matter.

Of course I cannot charge Dr. M. with introducing so objectionable a term as "Pink-eye," but I think it a fault to head an article for publication with borrowed nomenclature that means nothing. We *might* have "Epizootic Cellulitis," but certainly not "Pink-eyes." True, it is very common to hear English and Scotch veterinarians use the term, but surely there is no need to borrow their shortcomings. The use of the term during the past few months has served to mislead the public as to the importance of the disease, and given occasion for the indiscriminate dosing of the afflicted animals to an extent probably never equalled in the country, for it was said to be a *new* disease, of which the veterinary surgeons knew nothing, and consequently everybody felt at liberty to try everything in the shape of medicine that might be recommended, or that might suggest itself to the self-appointed surgeons in attendance.

I have no doubt Dr. M. was led to write of the disease as epizootic cellulitis from reading Professor Williams' account of what the Scotch call "Pink-eye," and which the Professor named as above.*

The description which the author gives of the disease would apply to many of the cases which I have seen here, yet I am far from certain that I have had to deal with epizootic cellulitis.

In the short account of the disease I sent to the November number of the REVIEW, so certain was I that influenza was the complaint of which I was writing, that it never occurred to me as at all necessary to enumerate the symptoms, and so I contented myself with calling attention to the characteristics of the outbreak.

In my correspondence with army veterinary surgeons, and also with those of St. Louis and New York, no other term

*See Principles and Practice of Veterinary Medicine, page 299.

than influenza was even suggested, so that, if in error, I am not alone.

But let us describe a typical case of this disease, whatever it may be, and leave the diagnosis to the reader.

Yesterday morning a horse belonging to Troop "G," Seventh Cavalry, took his exercise as usual, and seemed in the best of health. Toward evening he was seen to be dull, languid, standing with head lowered, ears drooping somewhat, and resting, first on one leg, then another. Only a part of his supper was eaten. This morning I examined him, and find the following symptoms presented: Temperature 106; pulse 80, very soft, and so weak as scarcely to be counted at the jaw; respiration 20 per minute; mucus membrane of the nose slightly injected, and dry on the surface; that of the eyes greatly swollen, deep pink in color, and covered with patches of loosely-adherent coagulated mucus. The cornea is injected, particularly along the inferior border, and the pupil is contracted. Tears are constantly dripping over the cheeks, and the eyelids are kept closed. The hair feels rough, and the legs are swollen. This swelling is oedematous, and affects most seriously the hind legs, which are warmer than is natural around the fetlocks, and slightly sensitive to pressure. The fore legs are but slightly swollen, as is also the sheath. The gait is precisely that seen in severe cases of influenza—weak and wabbling. The appetite is limited to hay alone; slight constipation. Is this *influenza* or *cellulitis*? True, all cases are not just like that above described, but they are simply modifications, and differ only in presenting various local complications, as may be seen in any epizooty of influenza. I deny that we are justified in calling the disease cellulitis, because a majority of the cases show unusual swelling of the limbs. The disease does not *begin* as cellulitis, nor is the cellulitis anything more than a local manifestation, depending *principally*, if not entirely, upon the debility of the circulatory system. It is worthy of notice that in those few cases where the mucus membranes of the nasal cavities and trachea are affected the heart-beat remains comparatively strong, and in no instance have I seen more than slight accompanying oedema of the extremities *without a symptom of cellulitis*.

If this disease *is* cellulitis, how comes it that we have *all* the unmistakable phenomena of influenza during the outbreak? Are we to infer that influenza is a *complication* of cellulitis? Shall we call the *tail* the dog, or shall we be reasonable and acknowledge that the dog is still the dog, notwithstanding his tail attracts the most attention by reason of its swollen condition? I by no means object to recognizing the complications of influenza, whatever they may be, and, if you please, I will say, as the Germans have done, that one of these complications is erysipelatosum phlegmonosum (cellulitis), and that in the present outbreak it is the one most prevalent; but I will not consent to calling the disease by this name, unless it can be shown that I am in error regarding what constitutes epizootic influenza.

Respectfully,

A. A. HOLCOMBE.

OPERATION FOR CARTILAGINOUS QUITTOR.

Boston, December 5, 1881.

Editor American Veterinary Review:

GENTLEMEN:—In the November number of the REVIEW, at page 373, there is an interesting description given of the removal of the cartilage to cure quittor.

With your permission, I will state a little of my experience in treating this disease, and at the same time make some remarks on the case referred to.

We are informed that “the horse had, for over six months, a cartilaginous quittor;” he was then operated on, and “resumed his work in thirty-five days,” making the duration of the disease seven or eight months.

Although I have treated a great many cases by burning out the sinuses with the red hot rod, by caustic applications and blisters, by forcibly removing the wall and sole from the affected quarter, and otherwise, *I have never succeeded in hastening their recovery in much short of six or eight months from the first opening of the sinus; neither have I ever seen a case where the discharge did not stop in that time under simple treatment.* I have

therefore discarded all painful treatment, and now rely wholly on poulticing, reducing the hoof so as to relieve the crowded vessels underneath, every third or fourth week, or oftener, and by turning into a low, soft pasture, when possible. Sometimes, when the hoof is not greatly shrunk, heavy horses can be kept at slow work a good deal of the time without much suffering, but the least painful and most humane treatment has invariably given me the best results. It may be objected that few owners would wait so long. I have not found this the case when advised to put their animals where they will be at the least expense.

Never having removed the cartilage as described, and having only seen this case reported, I hope the operation may prove as successful on a quittor just forming as in one "over six months" old. Unless this is proved, it is only another of the ingenious tortures to which the profession so often subjects its poor patients.

If this operation will cure a quittor a week or a month old in thirty-five days after it is performed, the thanks of the profession are certainly due Professor Liautard for bringing it to their notice. If, however, it will not shorten the duration of the disease, the sooner it is known the better. Hoping you will pardon me for troubling you with this rather long letter, and that we may get the reports of a few more such cases, I remain

Yours, very respectfully,

WILLIAMSON BRYDEN.

SOCIETY MEETINGS.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

FORTNIGHTLY MEETING.

The regular fortnightly meeting of this Association was held on Thursday evening last, Dr. Jas. Bell, President, in the chair. Mr. E. Crundall was balloted for and elected a member of the Association. After further general business, Mr. D. E. Campbell described a case of opacity of the cornea of two years standing, which he had treated by the application of calomel, followed

by a 5 grain solution of argentine nitrate and had a good recovery. Dr. William McEachran read a paper on the subject of tetanus. He described very fully and graphically the history, causes, symptoms and treatment of the fearful malady. He spoke of the fatal character of the disease, and said that nothing makes us feel our helplessness in combating disease, and at the same time the terrible nature of disease, than to witness a noble horse die of tetanus. The agony which is depicted in every feature of the poor dumb creature pleads strongly for our help, but such help as we can give can only at most alleviate the suffering except in rare cases. In speaking of the treatment, he stated that in this city during the past summer the majority of cases were due to injuries from picking up nails in the street, the result of throwing ashes containing them on the streets. He recommended when a horse picked up a nail, that, the nail being extracted, the foot should be pared down and the soft parts exposed, so as to prevent any irritant remaining in the wound; following this, the wound should be poulticed and some sedative applied to allay irritation and pain. Owing to the high nervous excitement present, absolute rest and perfect quiet are essential. In speaking of the internal treatment, Dr. McEachran stated that there was no remedy known which could be said to cure the disease, though the whole pharmacopœa had been ransacked and tried in vain. The indications, however, were always to relax the spasms and allay the extreme pain which the animal suffered. The essayist had tried various remedies to effect this purpose, and was satisfied that belladonna, in the form of the solid extract gave the best results. Hypodermic injections he had found to cause such violent spasms that he had ceased to use them. He concluded by describing some of the cases which had come under his observation during the past twelve months, one of which was in the practice of the College, and had recovered. The sedative which had been used in this case was belladonna; and another case in the practice of Mr. Wm. Jakeman, V.S., Halifax, had also recovered under the use of belladonna alternated with chloral hydrate. In the discussion which followed, Principal McEachran and Mr. C. J. Alloway, V.S., both related interesting

cases which had recovered in their hands. Mr. Alloway advocated hydrocyanic acid as the sedative and anti-spasmodic. The President, Dr. Bell, said that, as a medical practitioner, he was astonished to hear the large percentage of recoveries which had been stated. In his experience in human practice, in the General Hospital, he had seen only two cases of recovery, both of which were chronic tetanus. He considered that, theoretically, opium was the best anti-spasmodic and sedative which could be used, as it did not, as many others, depress the heart's action. He had never given it a fair trial. There was a great deal, he thought with the essayist, to be learned yet concerning the pathology and etiology of the disease.

A vote of thanks was passed to the readers of the papers, after which some pathological specimens were exhibited by Mr. A. W. Clement, and the meeting adjourned till December 8th, when Mr. Paul Paquin will communicate a case and Mr. Fred. Torrance will read a paper.—*The Gazette*, (Montreal.)

THE UNITED STATES VETERINARY MEDICAL ASSOCIATION PRIZES.

In accordance with the resolution adopted by this Association on the 21st of September, 1875, two prizes, one of fifty dollars (\$50), and one of twenty-five dollars (\$25), are offered for the best and second-best paper which shall be presented to the Association on subjects pertaining to veterinary medicine. By virtue of a subsequent resolution it is required that all competing papers shall be presented to the Secretary on or before the 15th day of July, when they will be forwarded to the Prize Committee for action and report. The Committee will report at the September meeting of the Association, where the successful papers will be read. The author of a paper will not declare his identity to the Committee, but will forward his article unsigned (unless with pseudonym) accompanied by a sealed envelope containing his name and address, subscribed with the title of his paper.

The Prize Committee earnestly invites competition for these prizes, believing that their award should prove a stimulus to the interests of the Association and profession.

A. S. HOLCOMBE, D.V.S., Chairman.

OFFICERS AND COMMITTEES OF THE UNITED STATES VETERINARY MEDICAL ASSOCIATION.

The following are the officers and committees of the United States Veterinary Medical Association :

President, W. Bryden ; Vice-President, L. McLean ; Secretary, C. B. Michener ; Treasurer, Charles Burden.

Board of Censors : Drs. A. Liautard, A. Lockhart, C. P. Lyman, J. S. Saunders, J. Robertson and C. B. Michener.

Committees : Library—C. H. Peabody, J. C. Fogg. Finance—C. H. Hall, John Saunders, A. A. Holcombe. Prize—A. Lockhart, J. C. Meyers, Jr. Intelligence—C. B. Michener, J. Winchester, W. J. Coates. Diseases—A. Liautard, C. P. Lyman, B. McInnes.

ARMY INTELLIGENCE.

“ SPECIAL ORDER, No. 283 :

“ HEADQUARTERS OF THE
“ ARMY ADJUTANT GENERAL’S OFFICE, }
“ Washington, D. C., Dec. 15, 1881. }

“ Par. 4. By direction of the Secretary of War, Veterinary Surgeon Cecil R. Leverett, 7th Cavalry, is discharged the service of the United States, to take effect December 31st, 1881.”

REVIEW.

CONTAGIOUS DISEASES OF DOMESTICATED ANIMALS.—No. 34.

We have just received Special Report No. 34 of the Department of Agriculture, on “ Contagious Diseases of Domesticated Animals,” and it is with pleasure we make our acknowledgments

for the same. The Honorable Commissioner of Agriculture deserves the hearty thanks of the profession for instituting such investigations, as well as for the careful manner in which they have been carried out. The latter is no doubt the result of the wisdom displayed by the Department in the selection of investigators.

Drs. Law, Salmon, Detmers, McLean and Lyman are men of recognized ability, and their contributions always command a careful perusal and consideration.

Besides this, the diseases treated of—*i. e.*, swine plague “chicken cholera,” contagious pleuro-pneumonia, anthrax and Texas cattle disease—are those that most interest the veterinarian and agriculturist at the present time. The action, which it is hoped the National Government will take, in dealing with these plagues will be largely influenced by such reports as the one before us. It would infringe too much on our space to give a lengthy opinion, as we would like, of the labors of these different investigators, and we must content ourselves with merely noting the prominent features of their report.

These investigations began about four years ago, and it is certainly very gratifying to know that since the preventive measures advised have been observed there has been a rapid decrease both in the number of animals attacked and in the virulency of the diseases.

Dr. Salmon gives some interesting results concerning the power of the contagia of swine plague in resisting certain antiseptic agents. He finds that chloride of zinc, salicylic acid, carbolic acid, iodine, sulphate of quinine and a few other agents in sufficiently strong solutions are destructive to the pathogenic organisms. Heat above 150° and putrefaction are also destructive.

The opinions entertained by Drs. Detmers and Salmon concerning the true nature, origin and development of the disease-germs are somewhat at variance, and it will doubtless require repeated experiments to definitely settle this point. As Pasteur has shown with anthrax, so the experiments of these gentlemen prove that the swine plague is less fatal when produced by inocu-

lation. Prof. Law, to whom this part of the investigation was specially entrusted, finds that the properly cultivated germ not only militates against the virulency of the disease, but also, that it insures immunity from subsequent attacks. Immense saving will accrue, then, when these "cultivations" are properly made and inoculation practiced.

Dr. Detmers places a higher value on carbolic acid as a prophylactic remedy than any other used by him. The value of these investigations is principally to be measured, however, by the knowledge obtained of the character, origin, development, etc., of the disease-germ, and, further, of the power of inoculation to render the system unsusceptible to future attacks of the disease.

Dr. Lyman's report on contagious pleuro-pneumonia has already been referred to in these columns, and it only remains now for us to state that the results of his labors prove that too much care can not be exercised in ante and post mortem examinations of cattle suffering from diseases of the respiratory organs. Especially is this true where such vast interests as our cattle exports are involved.

The so-called "chicken-cholera" has received a most thorough study at the hands of Dr. Salmon, and it would seem that our extensive losses heretofore have been largely due to a lack of knowledge on the subject. He concludes that the virus of the malady must be considered as a *fixed* one—and thus the danger of contagion by the atmosphere is reduced to the minimum. Dilute sulphuric acid is probably the best disinfectant and antiseptic to use about the coops, on the droppings, &c.

"Etiology of Charbon" is a resumé of the opinions of some celebrated French veterinarians, and the opinions here expressed are the most recent and trustworthy information we possess on the subject.

The reports of L. McLean of supposed cases of contagious pleuro-pneumonia, epizootic aptha and anthrax, are clear and concise, and show a thorough knowledge of the subjects treated upon. We fully agree with him in his opinion that as yet neither contagious pleuro-pneumonia nor foot-and-mouth disease have invaded our western States.

The report closes with "Extracts from Letters of Correspondents," giving the condition of live stock in all the different States.

Altogether this report is one of the most valuable ever issued by the Agricultural Department.

NEWS AND SUNDRIES.

RINDERPEST is reported in lower Austria. Three thousand and eighty-eight animals have thus far been lost by the pest.—*The Home Farm*, Dec. 1881.

FOOT AND MOUTH DISEASE is reported to be increasing in Cornwall, and has again broken out in South Hampshire.

THE NATIONAL BOARD OF HEALTH has expended since April 1st, 1879, to June 30th, 1881, a total of \$440,898. For a like amount the veterinary profession could show good results.

A DOG which had been accidentally confined at Metz fasted thirty-nine days before he was released, and recovered.—*Am. Cultivator*.

PINK-EYE.—More than 1,000 horses are suffering from "pink-eye" at Pittsburg, Pa. Several animals have died. Business is suffering in consequence of the prevalence of the disease, for which no adequate remedy has yet been discovered.—*The Prairie Farmer*.

A NOVEL CURE FOR SHYING.—In the town of Zwickau, in Saxony, a mare wearing spectacles has excited considerable attention. The animal is very short-sighted, and shies at the ground. A clever optician, hearing of this, constructed a pair of spectacles, and the animal is now completely cured of this fault.—*The Cultivator and Country Gent.*

WONDERFUL INTELLIGENCE.—The danger often attending the bite of a seemingly innocuous animal is forcibly shown in a case recently reported in California. A man was bitten by a rabbit, and nearly died in consequence. His physician, hardly believing that all the trouble proceeded from the bite, which was the

merest scratch, carefully examined the upper jaws of several rabbits, and found in each a hollow tooth containing a fluid so deadly that two drops of it, administered hypodermically, caused the death of a lamb within an hour.—*Am. Cultivator*.

SHEEP AND CATTLE RAISING IN CUBA.—An extraordinary amount of capital is being invested in sheep and cattle raising in Cuba. Including the horses and mules owned by the planters, it is calculated that the value of the cattle of all sorts in the Trinidad Valley amounts to \$2,000,000. Great care is being bestowed upon the breeding, and the importation of sheep, cows and bulls is increasing largely, no less than 1,000 head having been delivered at Cienfuegos alone in a single week.—*Am. Cultivator*, Dec. 17th.

FRANCO-AMERICAN COMMERCIAL RELATIONS.—M. Rouvier, Minister of Commerce at Paris, on December 5th, received the French committee for furthering a Franco-American treaty of commerce. He declared his willingness to withdraw M. Tirard's decree concerning American pork, if the Americans would institute a trustworthy system of inspection. In reference to the subject of the appointment of commissioners to negotiate the basis of a treaty of commerce, he said that he recognized that as soon as the treaties now under discussion were concluded the French Chambers ought to respond to the action of the American Congress by taking the initiative in the appointment of commissioners.—*N. Y. Sun*.

THE MORTALITY among the calves taken west this season is terrible, caused mainly by exposure, change of climate, food, etc., and by a disease known as lung worm, the lungs of the affected calves being full of worms of a thread-like character. Mr. J. Swaim, of Shenandoah, Iowa, reports that out of 947 head taken to his neighborhood, over 400 have died. The Treasury Cattle Commission has ordered this outbreak to be investigated by Dr. Farrington, who is now in the west in the employ of the Commission.—*The Breeder's Gazette*.

DR. LYMAN'S INVESTIGATION.—A Washington dispatch says that Dr. Charles P. Lyman, the veterinary surgeon sent by the

Department of Agriculture to Great Britain to investigate the grounds upon which the British Government based its regulations as regards the importation of American cattle, has submitted a report, from which the following brief extract is given: "As a result of my conference wrth the authorities of Great Britain upon the subject, it may be safely said that the impressions which they held regarding the health in this respect of our western herds have been materially changed, and that lungs having a certain appearance, heretofore considered as being that of pleuropneumonia, will not be so considered in the future."—*Cultivator and Country Gentleman*.

CRIBBING CURED BY ELECTRICITY.—An invention to prevent horses from cribbing has recently been tried in Paris. Mr. A. Angstrom has constructed an apparatus by which an electrical stream is led to the mouth of the horse as soon as it touches the manger. The horse which thus receives a shock will soon be cured of the bad habit of crib biting. The edge of the crib is for this purpose connected with two copper bands, which are separated from each other by a plate of caoutchouc, to which they are fastened. Each band communicates with the pole of an electrical battery, so that as soon as the horse bites the crib he touches one of the copper bands, uniting a spring which connects the electrical chain, and the shock is given.—*Turf, Field and Farm*.

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Revue fur Thierheilkunde Thieozucht, Archives Veterinaires, Recueil de Medecine Veterinaire, La Presse Veterinaire, La Clinica Veterinaria, Veterinary Journal, Veterinarian, Gazette Medicale. Annales de Belgique, &c.

HOME.—Medical Record, Bulletin of the National Board of Health, Turf, Field and Farm, Country Gentleman, American Agriculturist, American Cultivator, The Indue Medicus, Breeder's Gazette, National Live Stock Journal, Medical and Surgical Reporter.

JOURNALS.—Illustrated Journal of Agriculture, Iowa Farmer, Home and Farm, Forest and Stream, Rod and Gun, American Specialist, American Farmer, Western Rural, Medical Herald, Cleveland Leader.

REPORTS.—Trichinae and Trichinosis, Report of the Commissioner of Agriculture for the year 1881.

CORRESPONDENCE.—W. Bryder, A. A. Holcombe, Ed. McNicol, Tho. C. Crowley, Robert H. Harrison, W. A. Thomas.

AMERICAN VETERINARY REVIEW,

FEBRUARY, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 445.)

CALK.

Synonym.—Kronentritt (German)—Atteinte (French).—Thus is called a contusion, with or without wound, that the animal receives on the coronet, from the shoe of another foot, or from a foreign body, or by another animal walking behind or alongside him.

The skin of that region is very thick, slightly extensible, not easily yielding to the inflammatory swelling; there is commonly sloughing and mortification of tissues, accompanied with violent pain. It is frequent in animals that forge, also in very young horses or those which are weak in the lumbar region, and which interfere and cut themselves in walking. This lesion is also very common in the districts where horses are shod with high calked shoes, when the wound resulting from it is made by the internal branch of the shoe, which lacerates the skin of the coronet. Horses shod to travel on ice are commonly affected with it; the injury being more or less serious according to the size and sharp condition of the calk.

Horses ridden in riding schools are often affected with it during the various evolutions of the *haute-ecole*.

It is called *single* when the wound is slight; *concealed* when the pain is great and continued, as in the case where it takes place on the tendon, near the heels or the quarters; *horny*, when the contusion has taken place on the wall or at the coronary band; *complicated*, when it is very serious and accompanied with other more severe lesions. It is always a horizontal wound or a tumor by contusion.

I. *Symptoms*.—It is ordinarily recognized by the wound or swelling which exists upon the parts. Often, the horse is lame, and the affected part warm and painful; sometimes the hairs are cut, the skin scratched or torn. There may be a slight bleeding at the seat of the wound. When the wall has received the contusion, the vascular network underneath may become inflamed, and then pus is formed between the teguments and the hoof, which then become separated. Sometimes even the lateral fibro-cartilage of the foot becomes irritated and swollen and ulcerates, especially when the contusion has taken place on that part where the cartilage is; in this case the injury may be complicated with cartilaginous quittor.

In severe cases, one may recognize a *furuncular* calk, characterized by the mortification and sloughing of a portion of skin at the place where the contusion took place; it is the cutaneous quittor of old hippiatry, with formation of a core; this is always very painful, and the inflammation generally spreads underneath the wall. Bouley calls it *gangrenous* when there is unlimited similar mortification of the tissues; in this case the slough involves large portions of the skin. At times it may be called *phlegmonous*, when an abscess forms itself under the skin; then the coronet is warm, thick and inflamed, and the pain is extreme. Then if an incision be made through the dermis in its entire thickness, an abundant bleeding takes place, generally followed by the resolution of the disease; if there is already suppuration, it is at the same time immediately allowed to escape.

II. *Treatment*.—If the injury is slight or recent, whether with or without wound, very cold water and the removal of the cause

by taking off the shoe, are sufficient to bring on a cure. But if the contusion has been great and deep, recovery is more difficult to obtain on account of the suppuration which will follow. Then the application of poultices is indicated; if there is formation of a core and mortification of tissues, poultices of honey are especially indicated; in case of phlegmon, the poultice must be warm, and then incisions and counter openings must be made for the escape of pus; afterwards dressings are made with oakum saturated with tepid wine or tincture of aloes.

When the calking is horny, the use of emollient topically is insufficient; an excellent way then is to obtain the required sloughing of the tissues by actual cauterization—the iron heated to white heat: by thus destroying a portion of the hoof and the soft tissues, one will avoid the excessive pressure at the coronary band; this may also be prevented by the thinning down of the wall with the sage knife; but one must be careful not to remove too soon the portions of horn which may be detached.

When the calking takes place at the heel, it is good—so as to prevent other complications—to pare the foot down, especially at the heel, to remove the divided hoof and transform the wound to a simple one which can be dressed, as already stated, or with digestive ointment secured by several turns of a roller.

When there are wounds of the teguments, it sometimes happens, if the immediate union has not been obtained, that the portion of skin forming the inferior edge of the wound turns down and that the granulations protrude, tending to form a kind of fungoid growth. Chabert says that these must be cut off and dressed with oakum soaked in alcohol.

Calking at the hind feet being the most severe, and those which are followed by most serious complications, on account of the urine and droppings of the animal, which impregnate the wound, one can never be too particular in keeping them clean and dressing them well. When they end in cartilaginous quittor, they must be treated as that disease usually is.

As to the means of prevention, they consist in not placing the horses too close to each other in stables, fairs, &c., in not forcing them too much in their gait, in shoeing properly those which

forge or interfere, and in placing or riding them in such a way as to avoid the possibility of their wounding each other.

PUNCTURED WOUND OF THE FOOT.

Synonym.—Naglebritt (German)—Nail in the foot (English)—Clon de rue (French).—In veterinary science this designation has been given to a punctured wound, often with laceration, sometimes with contusions, either at the sole or frog of the foot of the monodactyles, and produced by sharp or cutting bodies, most commonly nails, upon which the animal steps. The form of these bodies, the direction they take, the force with which they penetrate, and the part of the sole they enter, give rise to various lesions, of varying gravity as they are older or as the injured part enjoys a greater sensibility.

Etiology.—Nails, stumps of nails, are most often those which are picked up in the streets; at other times it is a metallic substance elongated and sharpened; again, there are pieces of glass, or other substances, such as bones or sharp stones, which are picked up and produce the wound.

It is principally in the streets of populous cities, in the yards of builders, or on the grounds where buildings are pulled down, that horses are mostly exposed to receive these injuries. In rural districts they are rare, comparatively, to what they are in cities.

It is evident that horses with wide, flat, thin, softened hoofs are more exposed than those which are of different structure.

I. *Divisions.*—Punctured wounds of the foot may be *simple* or *superficial*, *deep* or *penetrating*.

One of these bodies, piercing into the frog, requires to go in deep to be serious, as above the frog (which is itself quite thick, though formed by a soft and flexible horn) is the plantar cushion, a fibrous, soft and elastic mass, which offers a great resistance. If, however, the injuring body is a very long nail, which runs perpendicularly in through the frog at the plantar cushion, it may reach the terminal extremity of the perforans tendon, situated immediately under the plantar cushion, and penetrate the sesamoid sheath. It is known that this sheath forms a sac of some dimensions, that it extends above and below from the infe-

rior half of the coronary to the semi-lunar crest, and in its transverse axis extends from one retrosal process to the other; the inferior portion of this synovial bursa covers the plantar aponeurosis in its whole extent. Sometimes, again, the puncturing body penetrates as far as the bone; sometimes the navicular; at others the os pedis, and sometimes even penetrates into the articulation.

II. *Symptoms*.—They vary according to the seat of the lesion, its depth, the mode of action of the penetrating body, length of time it has remained in the wound, and the nature of the lesions it has made; all conditions which may change the characters of the disease from a first degree, when the animal shows no evidence of pain, to the extreme point where its life is in danger, and even ends in death, by the excessive local alterations and the sufferings accompanying it.

Often the first point which assists in the diagnosis of the case is the *history*. The driver who has seen the horse become suddenly lame, has examined the foot and found a nail more or less deeply; at others, it is the surgeon who yet finds the nail in its hiding place. The exploration of the part shows with certainty the nature of the lesion, the direction and depth of the wound, as well as the physical condition of the body which has made it, and all circumstances which allow a positive diagnosis to be made.

Quite often the nail is no longer in the foot; sometimes it has left its mark—an opening which can be explored; often this is not visible at first sight, though the wound may be even deep; this is when the injury to the hoof has been very slight, and when the hoof has retracted on itself by its elasticity, or when the opening is concealed by the dirt of the streets. It must be remembered that sometimes the penetrating body remains broken in the soft tissues after its entrance through the hoof. If the accident is recent, only a little blood may be found—liquid or coagulated—over the wound; later, some serosity, more or less purulent, is observed; the pus is white or black, sometimes mixed with synovial fluid; sometimes there are granulations on the bodies of the wound which protrude over the edges, com-

monly called proud flesh. Such are the first objective symptoms obtained by the exploration of the parts. Ordinarily they are insufficient, for it is not always easy to probe the wound. It then becomes necessary at the beginning to pare off the hoof all round the wound, and sometimes to hollow it at the point of injury, without going to the sensitive structure, however. In this way the exploration and probing of the wound are rendered much easier.

The pain, expressed by the lameness, is almost always manifested; it varies according to the seat of the lesion and its depth. At first the intensity of the lameness does not give the exact measure of the disease, and often one may be led into error by it; but it gives an exact value of the lesion when a few days have elapsed since the injury was received; if the pains are slight or absent, they indicate that the reparative process is going on well; it is, on the contrary, interfered with by complications, when, as time goes on, the lameness increases instead of becoming diminished. Generally one can say that the inquiry will amount to nothing when the lameness is slight, while, on the contrary, serious complications must be always looked for when it is great and remains on long, even when the first lesion has been slight and superficial. The wound, which has penetrated through the hoof only, has no symptoms, no sequelæ; the animal is not lame from it, or if he be, the lameness is very slight, the foot resting entirely on the inferior surface; when the resting takes place only on the toe, ordinarily the tendon is injured, possibly the synovial sheath; in cases where high inflammation exists the pain is very great, the animal walking on three legs only.

The anatomical examination of the injured part teaches that the most serious punctured wound of the foot is that of the centre of the foot, where the tendon, synovial sac, and where the articulations may have been injured. Forward of this, the wound is less serious, even if it involves the bone. Posterior to it, it can only injure the plantar cushion. Under this condition the plantar region of the foot is divided into three zones: one, anterior, from the toe to the point of the frog; one, middle, extending from the first to the median lacunæ of the frog; and the third, anterior, covering the space left back of this to the heels.

(To be continued.)

ANTHRAX IN NEBRASKA.

BY W. A. THOMAS, B.V.M.

The outbreak of anthrax here, last summer, first appeared the 21st of August, about one mile from Lincoln, in a fine herd of fifty cows and one bull. In two weeks thirty head were dead, and, ultimately, but ten cows were left in the entire herd. A few died in other herds. The last case that I attended was a cow that died the 24th of October, after being sick six days. She was the only one in the herd that took the disease.

The season for some weeks previous to the outbreak had been very dry and hot.

The pasture is bottom land which is sometimes inundated, and contains some marshes and ponds. It is also underlaid with impervious strata of clay. Salt Creek, a sluggish and muddy stream, passes through this bottom. A few small, scattering trees, with the sunflowers, along the banks, served as the only meagre protection for the cattle during the heat of the day.

Symptoms.—Agalaxia; anorexia; adipsia; in most cases hematuria; staggering gait; head pendent; in one instance turning and licking one arm and then the other; leaning against a post, fence or tree; rising with difficulty or not at all when decumbent; tremor of muscles in the flank and shoulder; staring eyes; respiration and temperature various; legs usually cold; pain on pressure over the metacarpals; on no other portion of the body could I detect pain on pressure except in one case upon the abdomen; sometimes swollen beneath the jaws; no emphysema; pulse strong, usually 80 to 95 per minute; muzzle generally moist; alvine excretions normal except a peculiar brown color, rarely bloody; a few cases somewhat constipated; death usually within one to four days, with or without convulsions.

Necropsy.—Muscular tissues softened; portions of the peritoneum have a yellow infiltration; blood thin, coagulates tardily and is of a blackish red color. A little blood is usually found in the ventricles of the heart. In one instance, (twelve hours after death) I found blood in these cavities firmly clotted. Pericar-

ditis; a few engorged and blackened spots in the lower portions of the lungs; the liver enlarged, softened and sometimes hyperæmic; gall bladder filled; tissues adjacent hyperæmic; the gall thick with a greenish black, pulpy sediment; the spleen very much enlarged, with contents a disintegrated, pulpy mass of an intensified maroon or blackish red color; hyperæmia and hypertrophy of the kidneys, also softening and black spots upon the capsule; the bladder generally distended and the bloody urine containing a black sediment; in one case inflammation of the small intestines; the mucus coat of the rumen and omasum very easily torn, the omasum in some cases impacted.

Histology.—At the time of the outbreak, I could not obtain a microscope of sufficient power to make examinations. I sent some of the blood to D. S. Fairchild, M.D., Amer, Iowa, who found abundance of baccillus anthracis. He also performed experiments of inoculation, and found that the disease reproduced itself.

TUMOR OF THE METACARPAL REGION.

BY GEO. C. FAVILLE, B.S., D.V.M.

I do not know that the case of which I write will be of any peculiar interest to the readers of the REVIEW, but it was a case that interested me greatly, as well as all the medical practitioners of the city. A gray mare, five years old, was brought to me with the request that I should remove a small tumor from her leg.

On examination I found a rather soft tumor on the inside of the left metacarpal, about midway from the knee to the pastern. Upon casting the animal and cutting through the skin, I found what appeared to be a thin fibrous tumor about the size of a goose egg. In order to save making a large opening in the skin, I opened the sac, to remove it a portion at a time. Upon making an incision into the sac I found about a fluid drachm of a blackish-brown liquid. Pressure showed the sac to be almost filled with a black, greasy, slightly granular matter, with which was mixed a large quantity of perfectly-formed hairs. The wall

of the sac, instead of being, as I had supposed, a fibrous capsule, was a true cuticle turned wrong side out. It was lined with well-formed hairs about an inch in length and dark colored. Now, the question with me is, was it a true melenotic tumor or more of the nature of a demi-cyst?

The microscope showed the pulp to contain large quantities of fat drops and epithelial cells and brown pigment granules, as well as calcareous deposit.

The animal never had sustained any injury of which I could learn. The tumor had been there for three years, with no perceptible change, and never had shown the least soreness or inflammation.

TRICHINÆ,

4 A LECTURE DELIVERED BEFORE THE STUDENTS OF THE
AMERICAN VETERINARY COLLEGE.

BY F. S. BILLINGS, V. M.

(Continued from page 449.)

THE INTESTINAL TRICHINÆ.

So long as the trichinæ remain encapsulated in the fibres of the muscles, their condition remains unchanged. They make no progress in their development, irrespective of the number of years that they may have been encapsulated. They have been seen in an active—*i. e.*, capable of progressive development under conformable circumstances, yet encapsulated—condition, 13, 20, 24 years from the time at which their invasion took place.

(*a.*) In 1861 a woman was admitted into the hospital at Altona, a suburb of Hamburg, Germany, suffering from a cancer of the breast, which had been developing for some twelve years. On removal of the same, and subjecting portions of its tissues to microscopical examination, the presence of trichinæ in the muscular fibres was manifested. On inquiry, it was ascertained that in 1856 the woman resided at Davenport, Iowa, where she was taken suddenly very ill, gastric and rheumatic phenomena being

most manifest of any, together with œdema of various parts and paralytic phenomena. Her brother, with whom she resided, was attacked in a similar but not in so severe a manner at the same time.

The woman died at the hospital in question in 1864, and the examination of her muscles revealed the presence of great numbers of encapsulated trichinæ. A cat fed with pieces of these muscles died after the lapse of sixteen days, its muscles being repletely infected with these parasites.—*Boston Medical and Surgical Journal*, 1866, Vol. LXXIV., p. 186.

(b.) Virchow relates a case, where after the lapse of *thirteen and one-half years*, the parasites moved in their capsules on prolonged exposure to the heat of the sun.

(c.) Dr. Klopsch reports a case of trichiniosis and complete recovery, which took place in 1842. Discovery of the encapsulated parasites in the muscles 24 *years* after invasion. The discovery of the parasites in this case was also made at the time of excision of a mammary cancer, which took place May 6, 1863. At the same time that the woman in question was ill, in 1842, two persons in the same house became sick, presenting similar phenomena; both died.—*Archives fur Pathology and Physiology*, B'd 35, p. 609.

*Professor Danman, formerly of the Eldena Agricultural Academy, Germany, reports a very interesting case illustrating the longevity of embryonal trichinæ in the muscles of a hog.

This hog was fed with trichinous meat in November, 1864, and in February, 1865, presented to the experiment station at Eldena. Since that time the animal had been kept isolated in a pen by itself, unless taken out for examination. On the third of February, 1875, and the twelfth of February, 1876, Damman removed a small piece of muscle from the shoulder. At both times the microscope demonstrated the presence of living trichinæ. A considerable piece of flesh was removed and fed to two rabbits, and eighteen days subsequently their muscles were found to be plentifully infected with the parasites. This case demonstrates

*Zeitschrift für prac. Thierheilkunde, 1876, Vol. III., p. 92.

beyond all question the presence of living trichinæ which were capable of maturing, fructifying and developing young when fed to other animals, for a period of eleven and one-quarter years from the time the invasion of the hog first took place.

Although the encapsulated trichinæ suffer no changes while confined in the muscles of a living organism, yet the introduction of portions of such muscles into the intestinal tract of man, or other suitable animal, causes rapid changes in their condition. The processes of digestion soon set the embryonal parasites free from their encapsulated condition, three to four hours being sufficient to the purpose; the freed parasites rapidly complete their development, becoming matured trichinæ; 30 to 40 hours are in general sufficient to complete this metamorphosis. In cases of fresh invasion, when the capsules have not become hardened to any great degree, 24 hours have been found sufficient to demonstrate the presence of sexually matured trichinæ in the intestines of animals fed with such flesh by way of experiment. Nevertheless, one often finds parasites still enclosed in their capsules on the third day after feeding such flesh to an animal.

There is scarcely another helminth by which this matured stage is reached in so brief a period.

Under these circumstances, it must be evident that the changes necessary to maturity, by these parasites, must be of a very insignificant character.

As a rule, sexual connection takes place within two days from the time the trichinæ become free.

The parasites increase in length and thickness, and in the female the uterus fills with fructified ova, which soon develop into embryos enclosed in the body of the female.

The female intestinal, or matured parasite, lives from five to six weeks, and produces at least 1,500 embryos, (Leuckart.)

The newly-born embryos are at first buried in the mucous which lines the intestinal tract; a microscopical examination of such mucous will reveal them as free and movable parasites. The embryos soon begin their migration and dispersion over the organism, the first act being the penetration of the intestinal parsitics. It seems still to be a matter of discussion as to the

means or ways by which further migration takes place. Some authorities, and among them the most eminent, as Leuckart, Furstenberg, Gerlach, favor the view that the parasites proceed by the way of the mesenterium and connective tissue tracts over the system, and penetrate the sarcolemma, or connective tissue membrane of the muscle fibres, to lodge in the substance-plasma of the same. Here the parasite develops a capsule or bed, of a finely granulous character, for itself, the sarcous elements of the fibres becoming wasted or used up, and the striation of the fibres lost, so far as the capsule of the parasite extends. The sarcolemma of the muscle fibre forms a thickened, secondary capsule around the parasite.

Another view, the possibility of which is conceded by the above named authorities, to a minor degree, is that the parasites gain access to the circulation, and are transported over the system by the moving fluid, boring the smaller vessels at convenience, and in this means gaining access to the muscles. An enthusiastic defender of this theory is Dr. Thudicum, an English observer. Were this latter the principal path of dispersion, however, we ought to be able to find numerous examples of the parasite in the circulating blood of living animals which have been subjected to feeding experiments. This has not been the case, however.

Thus it is evident that the host or consumer of trichinous flesh provides the means for its own infection.

While this is in general the manner by which infection takes place, it by no means excludes the possibility of the infection of an animal taking place by intestinal trichinæ which have passed from an already infected organism with its fæces. In this way an infected swine may infect others, or in fact give occasion to a secondary infection of itself, by rooting the manure of its pen. In the same way swine may become infected from infected men, where, as is too often the case, the out-houses for the family are placed over the piggery, or lead into it; or where the contents of the same are thrown into the piggery for the swine to work over.

Thus we see the cycle of infection may frequently continue from swine to man, and man to swine. The trichinæ may be assumed to be regular cosmopolitans. They have been discov-

ered in Germany, England, Scotland, Denmark, Sweden, France, Italy, North and South America, Africa, India, Australia, Spain, Egypt and Syria.

In fact it may truly be said that trichinæ have been found infecting pork in whatever land and wherever they have been sought for.

Trichinæ have only been unquestionably found in warm-blooded animals, that is, by natural invasion, viz., man, cats, dogs, rabbits, mice, rats, foxes, the marmot, wild hogs, and even the hippopotamus. Gerlach has produced them in calves and the horse by feeding experiments, while Liesering was unable to produce invasion in the horse.

Several reports have been published with reference to the discovery of trichinæ in fish and other cold-blooded animals, but they are of a questionable nature, and non-conformable to our knowledge of the activities of the parasite. They become torpid at a temperature but little below that of the normal mammal. They do not seem to affect fowl, but have been found in the goose. In this regard I made quite a series of experiments with hens:

First.—I fed them in the natural way, with a large quantity of highly infected pork. Results, negative.

Second.—Assuming the triturating power of the gizzard might have power to destroy the parasites, before they could gain access to the intestines, I caused a quantity of infected pork to be hashed until it became a veritable mush, and contained, by microscopic examination, numerous *free trichinæ*. This mass was then stirred up with water at 40° C., into a sort of thin gruel, and injected into the intestines of the hens, after they had first been washed out with warm enemmas. The injected mass was kept from flowing out by artificial means; but although the hens lived, infection did not take place.

Third.—The abdominal cavity was opened in quite a number of hens, and the above mass, two tablespoons, put therein, the wound being afterwards carefully sewed up. Notwithstanding this insult the fowls lived, but no muscle trichinæ at the end of a month.

I hoped to carry these and other experiments on, but failing the means to the purpose, was obliged to give them up.

(To be continued.)

PATHOLOGY AND TREATMENT OF PARTURIENT FEVER.

(A paper read before the College Association of the A. V. C.)

BY G. S. AGERSBORG, Vet. Student.

Mr. President and Gentlemen—The subject allotted to me for reading is on “Pathology and Treatment of Parturient Fever.” I have had ample time, but the subject is stupendous, at least to a first course student spending his vacation on the frontier with limited personal data, and access to libraries impossible. However, we will present a few thoughts on the subject.

Puerperal fever is a term of fearful import, even in this day of enlightenment, and for centuries preceding the present was almost the synonym of death. But to-day, thanks to the scientific spirit of the age, if this terrible disease still confronts us with a fearful mortality, it is infinitely less than formerly, and we may reasonably hope that with the dawning of the 20th century will come the answer to what now is a subject of speculation and doubt, viz., its causation, which to-day in many cases is fairly pointed out, yet in many instances answered only by hypothesis open to distrust. A discussion of puerperal fever is a discussion of blood-poisoning in the majority of, if not in all cases; lesions of continuity in the generative tract of the recently delivered female being the gateway through which pass the autogenetic and heterogenetic morbid agents that form the main pathological elements of the disease, “the morbid opportunity,” as Trousseau so tersely expresses it. Nearly all writers, as far as we know, on this subject, include under this head cases of metro-peritonitis, so we have various pathological conditions to deal with under the name of parturient fever. Here, if we may be permitted to venture our own opinion, we would withdraw metro-peritonitis from the

discussion under the head of parturient fever; it seems to us there can be no good reason for continuing to discuss such a condition as a fever. True, the condition is the most common of all that befalls the parturient female, and yet is just such as would follow mechanical injuries to the uterus at its serous investments from any cause. Such a case, we opine, differs in no way from one caused by injuries to those organs from instruments, operations, blows, wounds, &c., in the non-parturient female. If it be found, however, that the introduction of morbid agents by the instruments, or hands of the obstetrician, produce such conditions, if it be found that metro-peritonitis is a link in the chain of blood-poisoning, then our premises are untenable; but we do not think this can be shown. Thousands of cases of so-called parturient fever are cases of septicæmia and pyæmia running their well-marked courses, without inflammation of the uterus, or involving either the pelvic connective tissue, peritoneum or abdominal peritoneum; but almost invariably affecting the serous investment of the lungs. Most authors hold to the doctrine, and teach the autogenetic origin of parturient fever. It is said that decomposition of retained placenta, secundines, blood clots, &c., enter the circulation by the lymphatics or blood vessels. If by the latter, through the patulous sinuses at the placental site, often through wounds or rents in the cervix uteri, or in primipara by way of the ruptured fourchette. Even the lochia, we are informed, pouring over the wounded parts, may impart the dreaded virus. We accept all this, but we also hold that a primary cause may exist, viz., "a pathological aptitude," a disposition in the blood of the parturient herself. If you ask why, we answer, because the cervix is almost invariably lacerated more or less at each delivery, and especially is this true of primipara. Portions of the membranes are almost always left to decay, and blood-clots in a state of decomposition pass over these abraded surfaces daily, and yet no blood infection takes place. Again, most of you have met with examples of a dead fœtus being retained in utero for weeks, nay, months perhaps, and yet there was neither metritis, or peritonitis, or blood poisoning. It is a common practice among country practitioners, and probably some city

ones, to allow the placenta, in cases of abortion occurring in the earlier months of gestation, to decompose and slough away, sometimes requiring weeks for its accomplishment, and yet accidents from such causes are exceedingly rare. Is it not true, that while a dissection wound destroys the life of one, it is perfectly innocuous to another? I know a gentleman, an industrious dissector, who very often wounds himself, even when engaged on the worst subjects, and yet experiences no inconvenience therefrom; also another who hardly dare touch a subject, having more than once nearly lost his life from erysipelas, caused by assisting at post-mortem examinations, although receiving no wound. Here, then, we have an illustration of two conditions: in the one we have the pathological aptitude, as some one has called it, and in the other no such condition exists. In the one we have plastic, in the other aplastic blood. Were the two above mentioned gentlemen females, there can be but little doubt how the perils of maternity would be surmounted in either case. The one would survive almost any accident, and the other scarcely the most trifling. But now let us go back. We have expressed the idea that metro-peritonitis had no relation to any condition that could be properly denominated parturient fever, or any other kind of fever. If we are to have any parturient fever at all, it seems to me high time we should confine the title to parturient septicæmia. Again, we said the generative tract of the newly delivered female was the gateway through which passed the *materies morbi*. Now, what is this morbid agent—is it always decaying or dead animal matter? Surely not always. Quite recently I heard of a woman who had well marked scarlatina, from which she died fourteen days after confinement—a primipara in her 20th year, her previous health had been good, in fact vigorous. but the environments were wretched. Previous to her confinement she had lived in a basement with decaying wooden walls, the house had been banked up with manure from the barn-yard the previous winter, which still remained at the time of her confinement in late summer. Now, this woman died of scarlatinal poison, and yet none of the rest of the family suffered from it.

Does not this case fairly illustrate the pathological aptitude

referred to in the beginning of this article. If we watch a case of pyæmia develop in a wound, do not the first changes take place in the wound itself? First it ceases to granulate, and assumes a livid, unhealthy aspect, discharging a dark, unhealthy pus; this preceeds blood infection several days; but we know what to expect; we know the fatal and terrible chill is not far off. Surely all this proves fairly that the primary cause is local, and if this be an isolated case it must have been atmospheric. Recent discoveries of bacteriæ in decaying animal matter, and the blood itself, and the presence of cryptogams in the blood and urine of persons subject to malarious poison, fairly prove the truth of the germ theory of disease. The antiseptic treatment of Lister and other great surgeons prove also the truth of this theory. We have no doubt, could the interior of the uterus be treated perfectly after delivery, the antiseptic dressing in the form of spray or injection, we would have much less of the so-called parturient fever. When we know how readily the healthy mucous surface takes on the virus of syphilis, how often it is imparted to the lips and mouth by kissing, by pipe-stems, wind instruments, etc., how much more readily will the intra-uterine surface after delivery, denuded by its epithelium, by its sloughing decidua, take on, or rather transmit to the blood bacteria, cryptogams, etc.

In regard to treatment, we can hardly disagree. Peritonitis claims opium in large doses; septicæmia, antiseptics, salicylic acid, chinin, etc.; pyæmia the same, with addition of chloroform. But better than all is prevention. First let no man who has come in contact with such a case go forth a walking pestilence, spreading ruin about him; time and disinfection will remedy this. We have all heard of the unfortunate Philadelphia physician who, suffering from an ozæna, no doubt malignant, destroyed every woman whom he delivered, the index-finger of his right hand conveying death from his nose to the genitalia of his patients. And the case of Dr. Arnette, of Vienna, when a parturient female with cancer of the cervix was admitted into the lying-in ward, and examined by scores of students, who infected fourteen lying-in women, three of whom

died; but in palliation, let me say this was in 1848. But this is a digression. What should we do in any or all cases to prevent the possibility of danger? We suggest, nay, we insist, that in every case the uterine should be injected immediately after delivery with an abundance of warm water, holding in solution permanganate of potassa, carbolic acid, or simply vinegar; then, above all, shut the uterus lightly, give ergot in large doses, or, better still, ergotine hypodermically. Let the obstetrician never leave his patient till the uterus has been at least partially contracted and well down in the pelvis. The case will be safe then, not only from infection from without, but from hemorrhage within.

Before closing this article we will introduce one case illustrating death from a mechanical injury to the uterus, occurring in a cow exhausted and depleted by travel and insufficient food. When called to see her she had just stopped from a journey of three hundred miles, was a primipara in the ninth month of gestation; there were no symptoms of labor at the time, but the patient was suffering from hoven, caused by over-feeding. We relieved her of the hoven; she was apparently well until forty-eight hours after, when labor developed, and from foetal dystocia the foetus had to be extracted. This I accomplished easily, delivering a decaying foetus, placenta and membranes being delivered intact. In forty-eight hours the animal was attacked with chills, succeeded by fever, death taking place in twelve hours. Post-mortem revealed a foetal hoof in the uterus, with lesions of continuity in the mucous expansion of the uterus. It is a fact well-known to veterinary surgeons that cows rarely fall victims to injuries from labor; the most serious usually recover. But here we have again the pathological aptitude on account of the reduced condition of the animal from travel and starvation.

And now, gentlemen, in closing, we ask you to be sparing in your criticism of our crudely-expressed ideas; we have given them because it is part of the curriculum, and not expecting to make a contribution to veterinary science; we are not a patriarch in medicine, but a humble student of veterinary surgery.

EDITORIAL.

SHALL STATE VETERINARIANS BE APPOINTED ?

No one will deny that the various attempts which have been made during the last few years to establish veterinary colleges in the United States, and the success that have been met with by some of those institutions, have done much to elevate the profession in the eyes of the public. But there is also another reason for the advance made by veterinary medicine, and that is the need of her practitioners, which presented itself because of the presence of contagious diseases amongst our live stock—diseases which were destroying so many animals, and interfering not only with our home trade, but also having in recent years diminished the extent of our foreign exportations. It was then that we saw the appointment of veterinarians by the General Government to investigate some of those affections. The first one, we believe, was made in 1868, given to Prof. Gamgee, who was requested to investigate the disease known as Texas fever, and from that time also, we believe, began the connection of veterinary surgeons with Boards of Health.

Since then other appointments were made from Washington by the Department of Agriculture, so as also to rid some of the Eastern States from the ravages and dangers of the bovine lung plague—contagious pleuro-pneumonia. State commissions were appointed, in which the true labor of inspection of diseased animals and suggestions of sanitary measures were trusted in the hands of various veterinarians. And in this way, by degrees, the veterinary surgeon found in the eye of the public the appreciation of his profession.

But all those appointments were only temporary ; they were only for the time when public anxiety was excited by the dangers ahead, whether at home or abroad, and every one knows that the life of these commissions has been generally short. The need of their existence remained, however, the same, and we have no doubt that it was from that need that some of the Legislatures of the different States thought of the creation of the positions of State Veterinarians.

The Western States, which are more or less threatened by the

invasions of contagious diseases from the East, were the first to take the lead in these appointments, and it is thus that we found the appointment of our esteemed associate, Dr. Paaren, named as Veterinarian of the State of Illinois. It is known that attempts have been made in other States, and the probabilities are that before long, Nebraska, Iowa, Wyoming Territory, and others will follow in the ranks.

The same question, however, as far as we know, has not seemed to be as favorably considered in the Eastern States, for we believe that so far Connecticut is the only State where the question has been agitated; in fact is so much so now that there is a great deal of feeling existing in that State as to whether a State Veterinarian is a necessity or a superfluity.

Speaking of this subject, an article has appeared in the New England *Homestead*, which says, after discussing the need of the appointment:

“There would be about as much sense in asking the Legislature to appoint a State physician, giving to such person exclusive medical privileges over the mass of practicing physicians. The State does appoint its Board of Health, whose duties may be said to be similar to those of the cattle commission; now how would it look to abolish that board and appoint a State physician? And while in the line of appointments, why not appoint a skillful physician of the soul to look after the moral diseases of the people and provide for them? If such a course as that was to be pursued and satisfactory results arrived at, it is quite probable that all objections to the cattle commission would disappear, as would also the desire for the appointment of a veterinarian. It will be time to meddle with the existing condition of things when there is a popular cry coming up from the mass of farmers in our State, but until that time it is best for legislators to be slow of being led away by the pretensions of any parties who, from any jealousy or ambition, may urge action that is not sought for nor demanded by those who are most affected thereby.”

Now, all this is very well, and to a very great extent we are of the opinion of the New England *Homestead*, which claims that as long as there is a cattle commission in the State which fulfils its duties to the general satisfaction of the people, there is

no need for the formation of a new office—that of a State Veterinarian. We do not see the true necessity of forming a special office for such State officer. But we must most emphatically insist on the necessity for the creation of such positions, and of its being connected with the State Board of Health. It is there, we believe, that the offices of the State Veterinarian belong—offices whose duties are so intimately connected with the general health of the people, he will then render in that direction services which could be appreciated, and which would show the usefulness of his profession. If State Veterinarians were connected with Boards of Health, their labors would not only touch this or that peculiar form of diseases, they would not only be obliged to look after pleuro-pneumonia, but after all those diseases which are met daily in our large cities, glanders, farcy, and in our country districts not only those, but anthrax, hog cholera, foot and mouth disease, &c., &c. And besides that, they could also exert their professional influence in one direction of our general laws of health, in the inspection of abattoirs, of markets, of meat, which we all know are yet in the hands of men entirely ignorant of the first principles they ought to possess.

No, the office and positions of State Veterinarians cannot be compared to those positions of State physician or State doctor of the soul; it has a national excuse and reason for its creation, but we do believe that it is with State Boards of Health that it ought to be connected, as it is in most parts of Europe.

PATHOLOGICAL PHYSIOLOGY.

UPON THE CONTAGION OF TUBERCULOSIS.

By M. H. TOUSSAINT.

The facts of contagion of tuberculosis that I have presented, and the objections made against them, have encouraged my investigations, whose programme embraces to-day over two hundred and twenty experiments—my principal object being the

contagious nature of that disease and its dangers in the point of view of hygiene.

When I begin the study of a contagious disease my first thought is to find the animal upon which the disease develops itself with most certainty and in the shortest time; such of my experiments were carried on with rabbits, pigs and cats. For the same reason anthrax was studied by others upon rabbits, because the disease is rarely spontaneous in that animal.

It is the same in pigs; I have seen that tuberculosis kills as surely these two species of animals as anthrax destroys the rabbit.

I believe, so far, that the susceptibility of the human species is still greater, and it seems to me very probable that if children, or even adults, were inoculated with tubercles, very few would escape contagion. A disease which kills the fifth of a species of animals is certainly a disease of that species. Tuberculosis is surely a disease of man, and when it exists under the form of germs in a great quantity of the aliments that we eat daily, is it too pretentious to say that sufficient conditions of hygiene to prevent this enormous mortality ought to be taken?

Tuberculosis of man is, then, the same as that of cattle; when inoculated to animals it produces lesions absolutely alike, susceptible of being transmitted to other animals, and to reproduce itself constantly with the same characters and forms. I convinced myself of this fact in feeding animals with human tubercles or by inoculating through the blood. As tuberculosis of cows, that of man is inoculable through the digestive canal, the blood, the liquid of secretion, and it always assumes identical characters.

It is true that it will be said that tuberculosis is communicated equally by inoculation of inert substances, but here explanation is necessary. It has been proved by numerous pathologists that one may produce almost at will lesions similar to those of tuberculosis; I have seen many similar complete cases; but this disease, so easily given, cannot be reproduced by the inoculation of the tuberculosis so obtained.

These experiments prove one thing, that the *histological*

lesions, by which tuberculosis was supposed to be characterized, are insufficient. To produce true tuberculosis in this way, susceptible of being inoculated, I deny; *experimental tuberculosis* remains an artificial fact.

True tuberculosis, taken from man, cow, pig, or rabbit, can be reproduced in an unlimited number of series; constantly, with the *absolutely identical characters*, it may pass from one animal to another without failing in its effects. I will say more. It becomes more powerful and rapid in its action as it is oftener inoculated. I might show numerous facts of series whose experiments are preserved. At first tuberculosis required four to five months to kill a pig or a rabbit; actually with five series two months are sufficient. General infection having taken place after thirty-five days, if at that time an animal is killed and another inoculated, this will die before the first.

It is especially in the tuberculosis produced by culture that the increase of virulency is observed. The serosity of the caseous ganglion of a cat, which died after an injection of culture, was inoculated to six rabbits; all became tuberculous. Forty days after one was killed; he already presented pulmonary deposits, which were inoculated to six rabbits and a pig; the pig died in fifty-seven days, and one of the rabbits in sixty-eight. At the present time animals of the fifth series are sicker than those of the third.

This is observed with the cultures; the fifth series are more abundant and rapid than the first, the tenth than the fifth. It seems that the microbe becomes acclimatized. A rabbit which, five months ago, received eight drops of an eighth culture in the jugular, has just died with a lung full of granulations, some also existing in the kidneys and the spleen.

I may again cite a pig, inoculated with vaccine cultivated upon a cow, which had been killed, and presented a handsome generalized tuberculosis.—*Gazette Medicale*.

EXTRACTS FROM FOREIGN JOURNALS.

VOLUMINOUS URETHRAL CALCULUS IN A COLT. PERINEAL URETHROTOMY BY REPULSION OF THE STONE. RECOVERY.

BY M. A. VANDERMIES.

The subject of the case was a stallion, two years old. His symptoms were as follows: general condition good, incontinence of urine, which is clear, limpid, normal in appearance, running out by drops, especially when the animal is in motion; at times efforts to micturate, often useless, at times followed by a strong stream of urine; ulcerated wound at the free border of the sheath; diagnosis is made of paralysis of the bladder. A year later same symptoms, but somewhat modified, urine is cloudy and sedimentous, ulceration of the sheath is enlarged, penis seems atrophied; gravel or stone in the bladder is diagnosticated.

Later on, the wound of the sheath has closed under treatment. On the 28th of March, 1881, the animal is unable to pass water; he lies down and gets up continually, assumes the dog-sitting position, and when standing is perched against the wall with his hind quarters. This last, says the author, is a position always indicating an obstacle or an alteration of the posterior part of the intestinal canal, of the urethra or of the bladder. Rectal examination reveals in the floor of the pelvis, in the urethra, near the posterior border of the ischium, a hard tumor. It is a large calculus lodged in the urethral sinus. The left hand introduced in the rectum, the stone was pushed well back to bring it to the surface as much as possible. An incision was then made directly upon it and the calculus enucleated, so to speak, at once. It measured 9 centimeters in length, 5 in width, and weighed 180 grammes.—*Annales de Brussels*.

RABIES IN A MARE. FRACTURE OF THE JAW.

BY M. PALAT.

Aged eight years, is admitted to the hospital for punctured wound of the foot. 24 hours after she tries to bite and kick the

horses next to her; she is then isolated and secured. Soon she presents all the symptoms of rabies. She bites everything she can take hold of, opens her mouth and seizes with ferocity all that is close to her. Her agitation is extreme. She takes hold of the manger and her mouth is all bloody. She bites a handful of hay but does not chew it or swallow it. She dips her head in a pail of water, seeming to bite the liquid. She kicks forward and behind with rage. Her perspiration is abundant as well as the urinary secretion. The sight of a dog does neither increase or diminish the access. She is constantly in motion and at last seizes the manger and fractures the superior jaw. Then exhausted, drops down and in fifteen minutes dies, less than three hours from the appearance of the first symptoms.—*Recueil de Medecine Veterinaire*.

EFFECTS OF THE PAPAVER RHÆAS (COQUELICOT)
UPON TWO COWS.

BY M. E. BARBE.

The 14th of June, 1880, the author was notified by a farmer that his two cows were affected with epilepsy. On inquiring as to the mode of feeding, he was told that the evening before they had received grass containing a large number of coquelicots (corn-poppies), and that they had shown no bad effect from it. They received another feed of the same kind that morning. This time the toxical effects were not long in showing themselves. Soon after feeding one was noticed dull, restless, scraping the floor with her fore feet. The eyes became swollen, the look anxious, the pupils dilated. The abdomen was distended, the tail and ears continually agitated, abundant perspiration, respiration accelerated, pulse probably was full and nervous; to the excitement succeeded coma. According to the owner, in this comatose condition, the animal held its head down to the ground, or resting on the manger; eyes partly closed; then the animal would suddenly fall down, to get up a moment after. In moving, she stumbles at each step, pushing forward.

The second cow shows the same symptoms but struggles more, and her convulsions are more marked.

These symptoms lasted two hours and a half. During that time the first cow had four fits, the second only three, but they lasted longer.

Not knowing what to do, the farmer gave them a quart of black coffee. The symptoms subsided but the cows had several fits afterwards.

At the visit of Mr. Barbe, he found them quiet, but exhausted and very weak; the pulse was regular, the ears neither cool or warm; their walk was staggering, but without fall; the eyelids somewhat swollen, conjunctiva normal; pupil but little dilated; on the whole recovering. Coffee was continued, low diet, and recovery perfect in a short time.—*Recueil de Medecine Veterinaire.*

FUNGOID ARTHRITIS IN THE PIG.

BY M. REQUIER.

Requested as inspector of meat to visit a young pig, which was to be killed and sent to market, and having noticed in him no disease which could be injurious, permit was given to take him, but having observed a lameness of the anterior extremity, the knee of which was much swollen, this was dissected.

The left anterior leg is much sprung at the knee and on the anterior part of the hoof. The knee bent forwards, is considerably swollen and immovable; there seems to be carpal ankylosis. The skin of the knee is of a red-purplish color, and strongly adherent to the tissues underneath, by the transformation of the connective tissue, which is hypertrophied and degenerated. This tissue is almost cartilaginous, and can scarcely be cut with the knife. Sections made in all directions through it show at places oval cavities of various sizes, with walls as hard as the surrounding tissue. Their contents are grayish, caseous in consistency and look like insipid pus. Upon longitudinal section they have a marbled aspect, and seem subdivided in small cavities by a greyish pale connective tissue.

These lesions were observed upon the lateral and especially the posterior face of the knee; the anterior is free from them. The articular surfaces are red, the synovia slightly rosy.—*Journal de Zootechnie.*

SUBCUTANEOUS HERNIOTOMY.

BY M. SARCIRON.

A barb stallion is taken with slight colics while exercised. He is agitated, paws, stretches himself behind, looks towards the left inguinal region, does not lie down; the loins are stiff, walking difficult, respiration and circulation accelerated, pulse small. The left testicle is much swollen, hard and painful to pressure, the vaginal sac is distended, spermatie cord hard and painful. By rectal examination a portion of the intestine is felt in the inguinal ring.

Diagnosis.—Acute inguinal hernia, with serious prognosis.

Having failed to reduce it by taxis, and with hope to save the animal as a stallion for breeding purposes, he was operated upon by the author as follows:

The animal being etherized, the left testicle held by the operator with the left hand, with the straight bistoury, an incision two and a half centimetres in length was made from forward backward, upon the most prominent point of the external side of the testicle. The serotum and dartos are opened with curved seissors and the index, the cellular tissue underneath uniting the erythroid and fibro-serous layers is isolated and these membranes exposed as far as their superior portion. This is then slightly punctured with the straight bistoury a little below the inferior inguinal ring, the puncture being enlarged with the straight seissors turned from backward forward, sufficiently to admit the index finger. The upper edge of the wound is raised with a tenaculum and the testicular mass is depressed downwards. The left index, carefully oiled, is easily introduced in the cavity of the sac, and feels without difficulty its contents. Above, the canal is closed; the intestines and the cord above the inferior opening are strongly strangulated. An ordinary blunt bistoury is then introduced, resting upon the index, as a guide, its sharp edge turned backwards, gently pushed beyond the strangulation, and by a slight motion outwards the fibro-serous covering of the sheath is divided. Though the strangulation is reduced, it is not sufficiently to allow the return of the intestines; the hand in the rectum then siezes it and

a slight traction returns it into the abdomen. A stitch is made in the outside opening, and the animal allowed to get up. The animal made a rapid recovery, and was used as a stallion for over a year. He, however, ultimately died from a second attack of inguinal hernia of the left side complicated with rupture of the bladder.—*Archives Veterinaires*.

FOREIGN BODIES IN THE ŒSOPHAGUS OF RUMINANTS. A NEW PROBANG.

By M. JOUANNE.

This method consists simply in using a piece of rope (easily found on all farms), or taking that of the main hobble, and using it to push the alimentary bolus into the stomach, and is principally useful when the foreign body is in the thoracic portion of the œsophagus. The author proceeds as follows: the puncture of the rumen being done, if the canal is very distended, a piece of rope about 1 meter 50 centimeters long is moistened with warm water and then oiled, and introduced in the œsophagus as a probang, twisting it in the direction of the threads of the rope so as to facilitate its introduction. This wet rope is sufficiently rigid to apply a strong pressure upon the foreign body to displace it, and push it into the stomach, while by its flexibility it allows all motions of the neck without any danger to the animal.

Mr. J. has used this treatment on two occasions with entire success.—*Archives Veterinaires*.

A PROLIFIC MULE.

This is a curious case of fecundity in a *mule*, at the Jardin d'Acclimatation.

A small African mule, 17 years old, has had the five following products:

The first two were from the meeting with a barb stallion. Both were females and form a handsome team. They have the head, ears, mane, tail and feet of their sire.

The third product is a male, dappled grey, whose sire was a thoroughbred white donkey. He resembles more the dam than the sire.

The fourth is also a male, of dark color. His sire is a donkey of Nubian breed. He partakes of both sire and dam.

The fifth is again a male, dark bay, produced by a barb stallion, which the little animal resembles completely.—*France Chevaliere*, (A. V.)

FRENCH VETERINARY SCHOOLS.

NEW REGULATIONS.

CHAPTER I.

Veterinary Schools.

Sec. 1. The National Veterinary Schools of Alfort, Lyons and Toulouse, are placed under the authority of the Secretary of Agriculture and Commerce, and under the survey of the Prefects of Departments in which they are situated.

Sec. 2. The régime of the schools is the internal. However, the Secretary may grant students, who may ask for it, and with the advice of the council of the school, the authorization of following the courses as external students.

Foreigners are admitted in the veterinary schools on the same conditions as home students.

Sec. 3. The fee of the school is 600 francs a year, payable in three terms, viz: on October 1st, 180 francs; on January 1st, 180 francs; April 1st, 240 francs. External students are admitted by paying at the same dates, and in proportion, a scholar fee of 200 francs a year. Besides the fees of the school, both internal and external students are obliged to pay, at the beginning of each school year, 50 francs, for objects destroyed or lost by their fault.

All students, both holders of free scholarships and those paying fees, are obliged to furnish at their own expense, their clothing, and the books and implements necessary to their education.

Sec. 4. 70 *free scholarships* and 140 *half free scholarships* for

boarding students, are distributed between the three schools by the Secretary of Agriculture and Commerce.

These are granted according to the rank of the students after the examination of admission, or those for passing to a higher class, after they have given proof of the insufficiency of their pecuniary means or of that of their family to pay the whole or partial fee of their education.

They are only granted for a scholar year—they may be continued in favor of the student who may have proved worthy of it by his conduct or his advance in his studies.

Sec. 5. Students have regimentary uniform, designated by the Secretary. This cannot be changed in any way, even outside of the school.

CHAPTER II.

Admission of Students.

Sec. 6. No one is admitted except by way of examination.

This takes place every year in each school at a fixed time.

Sec. 7. To be admitted to this examination, each candidate must be seventeen years of age at least, and not more than twenty-five, on the 1st of October of the year the examination takes place. No allowance on account of age is granted.

Sec. 8. The application for admission to the examination is made on stamped paper to the Secretary of Agriculture, either directly or through the prefect of the Department where the candidate resides.

It must be accompanied by the following :

1st. The certificate of birth of the candidate.

2d. One from a physician showing that the applicant has had small pox, or has been revaccinated within at least three years.

3d. A certificate of moral character granted by the principal of the establishment where the candidate terminated his last year's studies or by the Mayor of his last place of residence.

4th. On stamped paper, an obligation of the parents to guarantee the payment of the fees during the time the candidate shall be a student.

This must be endorsed by a correspondent living in the vicinity of the school, in case the parents of the candidate are not inhabitants of the locality where the school is situated.

Foreign students must settle their obligation by having it endorsed by a correspondent living in France, in his proper name, an obligation which renders him personally responsible.

All these certificates must be properly certified.

Sec. 9. Applications for free scholarship made by entering students are directed to the Secretary, through the Prefect of their Departments before August 1st. They are sent to the municipal council of the locality of the family of the candidate, so as to allow it to report as to the pecuniary position of the family. The deliberation of the council is transmitted to the Secretary by the Prefect who endorsed the same.

Students already admitted, may apply also for free scholarships at any time of the year, but receive no granting until after the examinations of the end of the year.

Sec. 10. Candidates are examined according to a programme laid down by the Secretary, and published yearly in the *Journal Officiel* before the 1st of April.

Candidates, holders of titles from any university or diplomas of governmental schools, implying the possession of knowledge superior to that of the programme, are admitted without examination.

Sec. 11. The Board of Examination for admission is nominated each year by the Secretary on the proposal of the Director of the school. He marks the list of the candidates admitted. The Secretary closes the list of the students admitted according to their rank and the number of vacant places in each school. He also decides as to the free scholarships.

The list of admitted students, also as that of the scholarships, is published yearly in the *Journal Officiel*.

CHAPTER III.

Curriculum.

Sec. 12. The length of studies in the veterinary schools is four years.

The curriculum embraces the following branches:

Physic, meteorology, chemistry, pharmacy and toxicology, natural history and materia medica.

Anatomy of domestic animals and external form of the horse.

Physiology of domestic animals, teratology and general therapeutics.

Pathology of contagious diseases, sanitary police inspection of meat, legal medicine and veterinary jurisprudence.

General and medical pathology and chemical studies—surgical pathology, operative surgery, art of shoeing—hygiene and zootechny.

French literature and the German language.

Sec. 13. Any student found, at the end of the year, after the examination, unable to pass to a higher class, will be discharged.

However, under proposal from the Council of the school, the Secretary may allow students, somewhat deficient, the privilege of following the past course over again, if there is a prospect that their own efforts may be more successful at the next examination. This allowance, however, can be granted but once to the same student. This last section does not apply to students whose study may have been prevented by sickness or similar disabling circumstances.

Sec. 14. Diplomas of veterinary surgeons are delivered each year by the Secretary of Agriculture and Commerce, to the students named by the Council of the school as having satisfied in a complete manner all the requirements at the end of the studies.

To be admitted to this examination, 100 francs must be deposited as payment for the diploma. In case of failure to obtain it, this sum is returned.

CHAPTER IV.

Personnel—Faculty.

Sec. 15. Each veterinary school is administered by a Director, named by the Secretary.

The authority of the Director extends over every part of the service of the school.

He corresponds with the Secretary and communicates to him all the circumstances relating to the regular progress of the school.

Sec. 16. The personnel of each school is composed as follows :

The Director, professors and adjunct professors, whose number is fixed by ministerial decree.

The Director may have his chair filled by a supplementary professor.

Sec. 17. Professors and adjuncts are appointed by the Secretary of Agriculture after public competition before a special board.

Sec. 18. In the absence of candidates for adjuncts, their duties may be delegated to auxiliaries named for three years. These are named by the Secretary on the proposal of the Director and advice of the Council of the school, endorsing the nomination of the professors of the chair to which they are to be appointed. They are known as Demonstrators (*repetiteurs*).

Sec. 19. In all the cases where examination is to take place, the composition of the board of examiners, the date, mode and conditions of the examination are fixed by the Secretary.

Sec. 20. Attached to each school shall be a manager, * *

Sec. 22. Lodged in the school are the Director, * * *

Sec. 23. A physician, named by the Secretary, is attached to the school.

Sec. 25. A general inspector, named by the Minister, gives his advice upon the measures concerning the education and administration of the schools. He visits the schools at least once a year, and reports to the Secretary as to their condition.

Sec. 26. The officers and all clerks must give their whole time to their duties. They cannot accept any other political work without the authorization of the Secretary.

Salaries of Officers of the French Veterinary Schools.

Directors.....9,000 francs a year.

Professors.....from 5,000 to 7,500 francs a year.

“ of Literature and German Lan-

guage.....3,000 francs a year.

Adjunct professors.....from 3,000 to 4,000 francs a year.

Demonstrators (*Repetiteurs*).....2,400 francs a year.

Physician.....1,200 francs a year.

SOCIETY MEETINGS.

MEDICAL ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

The Medical Association of the American Veterinary College held its regular weekly meetings for the month of January in the lecture-room of the college.

The large number of gentlemen present at the meetings was indicative of the gradually increasing interest taken in the society by its members.

At the meeting held January 5th, Vice-President W. B. Rowland presided.

After the calling of the roll the record of the previous meeting was read and accepted. Mr. Lippincott then read a paper on "Strangles," describing very fully the causes, complications, and various forms of treatment of this disease. A discussion of the subject followed, limited chiefly to the indications for treatment. At the conclusion of the discussion a vote of thanks was extended to the essayist.

Announcement was made that at the next meeting Mr. Agersborg would read a paper on "Parturient Fever."

The next meeting was held January 12th, Dr. C. B. Michener, President, in the chair.

First in the order of business was the reading of the minutes of the previous meeting by the Secretary, which were accepted as read.

The case of J. J. Murray, D.V.S., New York, N. Y., a member of this Association, charged with breach of ethics in advertising, having been referred to the Executive Committee at a previous meeting, the Chairman requested a report. The Secretary of the committee stated that they had communicated with the gentleman, and they would submit as a report his reply to their communication, which they considered very unsatisfactory, extremely uncomplimentary to the Association, and unbecoming one of its members.

On the reading of this communication a motion was made and seconded "that the name of J. J. Murray be erased from the

roll of this Association; that he be *expelled* from its membership, and that he be notified of this action of the meeting by the Secretary." Motion carried by a unanimous vote.

The Chairman of the Committee on Obituary reported no reply from the St. Louis *Globe-Democrat* in regard to charges for insertion of obituary; whereupon the meeting voted "that their silence be construed as affirming that said obituary had been inserted free of expense, and that no further action be taken by the Association."

The meeting then listened to a very interesting paper by Mr. Agersborg. Subject: "The Pathology and Treatment of Parturient Fever." The subject was very ably treated by the essayist, and an interesting discussion followed, participated in by a number of the members, at the conclusion of which a unanimous vote of thanks was extended to the author.

At the next meeting, held January 19th, at the conclusion of the regular order of business, Mr. Moulton read a paper on the subject of "Heredity; the part it plays in the production of disease." The paper was very interesting, the essayist arguing that any disease of the animal organization, whether of structure or function, was liable to transmission from parent to offspring, though the hereditary character of a functional derangement, unaccompanied by any apparent structural change, may be more frequently overlooked, but is nevertheless as well established.

Considerable discussion ensued on the subject, and the thanks of the meeting were extended to the author of the paper.

Announcement was made that a paper would be read at the next meeting by Mr. Weise, and the week following by Mr. Traver.

No other business coming before the meeting, it was adjourned.

L. S. HOWARD, *Secretary*.

CORRESPONDENCE.

EPIZOOTIC CELLULITIS UNQUESTIONABLY A FORM OF INFLUENZA.

Editor Review :

The January issue of the REVIEW furnishes a criticism relative to the nomenclature adopted by myself in designating the type of the outbreak of the late epizootic, from the pen of our worthy correspondent, Dr. Holcombe, Veterinary Inspector U. S. A., who condemns the term epizootic cellulitis, as applied to this variety of influenza, in my brief article of the November number of the REVIEW, which, in order to substantiate my views, necessitates a reply in the way of a few explanatory remarks.

Not being satisfied with the general term influenza, which had been adopted throughout the country by the profession to designate this late epizootic, I endeavored to find a name more explicit than the above; at any rate, a name that would convey an idea as to the localization of the disease by consulting the German and English literature at my command, neither of which furnished the desired information to my entire satisfaction, *i. e.*, a scientific term that alludes to this particular form of influenza, which is still prevalent in the eastern portion of this country.

Most eminent authorities agree that to the term, Influenza, is given too wide a range in veterinary science. Prof. Roll says that it has become a habit with the profession to designate such epizootic invasions as catarrhal fever, bronchial catarrh, acute gastric and intestinal catarrh, pleurisy, pneumonia, and erysipelatous forms of disease, attended with profound apathy by the term "Influenza," a name which does not denote any definite form of disease, but signifies a general distemper.

Considering the various forms in which influenza makes its appearance, it seems to me the term is so vague that it can be correctly applied to almost any acute epizootic disease that in the least has any symptoms of catarrhal affections, not regarding other manifestations that may exist, of much greater importance, even if they decidedly predominate over the catarrhal affections.

If the term "Influenza of solipedes" can be restricted to a

diseased condition of any apparatus, it certainly ought to be confined to that apparatus which it, as a rule, involves, and that is the respiratory apparatus.

The principal manifestations of this recent epizootic outbreak are located within the cellular tissue, and for this reason I came to the conclusion to adopt the term epizootic cellulitis, taken from Prof. Williams' "Principles and Practice of Veterinary Medicine," the description of which disease being identical in a great measure with those symptoms exhibited by most of my patients. The various other names for this malady that are mentioned by the same author are rheumatic influenza, muco-enteritis, and pink-eye.

Dr. H. also censures me for heading an article with borrowed nomenclature which means nothing, having reference to the word "Pink-eye." The use of this term, he claims, serves to mislead the public as to the importance of the disease, and gives occasion to the indiscriminate dosing of the afflicted animals to an extent probably never equalled in the country, for it was said to be a new disease, of which veterinary surgeons knew nothing, and consequently everybody felt at liberty to try everything in the shape of medicine that might be recommended, or that might suggest itself to the self-appointed surgeon in attendance.

Conceding that the term "Pink-eye" is a faulty nomenclature to head an article with, in a scientific point of view, I did not intend the reading matter for the professional fraternity alone, nor did I want to inform or enlighten them by my few remarks on the subject, as I granted that all qualified veterinarians were familiar with the disease and its proper management, and from the fact that the public regarded it as a new disease, they naturally would seek information regarding it through veterinary periodicals, and would, unquestionably, look for it under the title of Pink-eye. This reason prompted me to permit my article to be headed with so crude a term in connection with my adopted title, "Epizootic Cellulitis." And by reading the simple facts, as presented in my description, the laity would readily recognize the importance of the new disease (in their minds), and as a rule

would, instead of interfering with it, call upon some competent veterinarian to administer the proper remedial agents, as they would lack confidence within themselves to treat the cases on their own responsibility.

I will state here that at no outbreak of any epizootic disease, since that of 1872, were the services of veterinary surgeons in so great a demand as during this last invasion.

Why? Because the public were not familiar with the disease. They themselves could differentiate it from the previous epizootic, and recognize its importance at once.

But applying the broad term Influenza to it, in my opinion, would tend to lead the public to regard it as the same affliction as the preceding outbreaks that were so designated within the last decennial period, which would be rather dubious in the minds of some, who would then emphatically declare the profession knew nothing concerning the so-called new disease, and would then indiscriminately dose the horses in the same manner as on former occasions, and would shun the employment of a veterinary surgeon until some complication would occur that would baffle them, which might have been avoided if the case had been in competent hands at the outset.

The indifference with which most owners of horses treated the two preceding epizootic influenzas was really hazardous. They, in combination with the grooms, considered themselves skilled in the treatment of the disease. The word "influenza" was quite a common utterance from the mouths of horsemen, and with a remarkable degree of audacity and alacrity did new "horse doctors" spring up from among them, so that a great portion of the veterinary practice found its way into the hands of such empirics, not to mention anything of the numerous quack nostrums that were thrown into the market for the cure of influenza. This ought to be sufficient reason to modify, or specify, the term if opportunity is afforded, especially if the public want to dub it otherwise.

That it is not identical with the former epizootic outbreaks of Influenza can be easily inferred by the almost epizootic manner the disease has invaded the equine population in the various

cities of the country it visited, and the character of the complications that presented themselves, and last, but not least, the different phenomena of the disease itself, which differences were patent to the most ordinary observer; moreover, the crisis of the disease in the last visitation varied greatly as compared with the former ones.

The chief reasons for accepting the term epizootic cellulitis are—(excluding complications) there is no special organ or apparatus, where the disease is invariably localized, it being a general affliction, ushered in usually by a high initial fever, and as a rule having its visible expression within the cellular tissue of the extremities and palpebral region, the former, being at first characterized by a shifting of the posterior extremities, next an erysipelatous swelling and tenderness—in some cases lameness is observed, which is followed by a stiffness, and after the febrile stage has subsided, a marked debility supervenes, and the swelling assumes an œdematous form, the latter by a swelling of the palpebral connective tissues of one or both eyes, a puffiness and eversion of the conjunctiva, with an appreciable serous infiltration submerging it, attended with a partial protrusion of the membrana nictatans, turbidity of the cornea and a marked photophobia in some cases. This is not absolutely pathognomonic; however, it occurs in a vast number of cases and is worthy of mention; moreover, it assists materially in supporting my views as to the localization of the disease.

By recognizing these facts, is it not self evident that the cellulitis is the disease, *per se*, and not only dependent principally, if not entirely, upon the debility of the circulatory system, as Dr. H. claims. I have often observed that the soreness and stiffness existed one or two days before any swelling was perceptible. Now, let us see what the chief complications of the present epizootic are. They, in my experience, do not in the least compare with those of the preceding outbreak of influenza.

Suppurative pneumonia is the main fatal complication. It ordinarily begins as a latent form of interstitial pneumonia, and not with the true catarrhal type, as during the former invasions of influenza. To discover the presence of this organic cellulitis,

(as I prefer to designate it) in its incipency, it requires a careful physical examination, as the calm respiratory movements do not furnish any pronounced information until the disease is thoroughly established.

Acute glanders was the most dangerous complication or sequel of all. I have had occasion to witness seven cases during the presence of the cellulitis, a very unusual occurrence. Several of these cases terminated with suppurative pneumonia, and the others were destroyed. In two of these cases, there were suspicious indications before the epizootic broke out.

But the most lamentable and destructive accident that befel the equine species during the prevalence of this influenza, was the frequency of abortions in pregnant brood mares. This deplorable complication has never in the history of previous visitations of influenza, to my knowledge, played so important a destructive role, as it has during this one. If it had, the scarcity of the equine population would be felt in commercial interests. As for cases of purpura hemorrhagica, which was the great bugbear of former epizootic outbreaks of influenza, I sought for them in vain. These cases must have been exceedingly rare, judging from the 1,500 cases more or less, of this form of influenza, that came under my supervision. I found but one case that bore the slightest resemblance to this unwelcome complication. He was a bay draught horse whose limbs were greatly swollen, clear up to his elbow and stifle joint, with bloody serous oozing through the skin for two days. He had no petechiæ on his visible schneiderian membrane, nor any swelling about his head. I therefore regard it as nothing more than a phlegmonus case of cellulitis. I do however admit, that cases of genuine purpura hemorrhagica, are met with, probably in most instances as a complication of a catarrh or laryngitis not having any connection with the influenza, as I have had quite a number of cases of coryza in non-infected districts, that had recovered, and several weeks afterwards were attacked with the cellulitis in all its phases.

Of course, there were numerous other incidental complications, as intestinal catarrh, laminitis, cerebral afflictions, etc.

Judging from the complications, the absence in a great

measure of the catarrhal afflictions of the air passages, the irregular mode of infection, and the short crisis as a rule, is it not plausible to infer, that the poisonous germs giving rise to the late epizootic influenza, differ materially in their character and effects, as compared with former epizootic outbreaks in this country during the last half score of years? A revision of the nomenclature certainly cannot be so erroneous, after all. Dr. H. acknowledges that it is improper to indiscriminately designate a disease influenza—at the same time he does not venture to suggest a term to discriminate this type of influenza, which I have attempted to do.

J. C. MYERS, JR.

COLLEGE OF VETERINARY SURGEONS OF AMERICA.

Editor of the Review :

Since you have invited criticism of your editorial in the January issue of your journal, under the above caption, be so kind as to excuse the unseemingly liberty I take in dissenting so freely, as I propose to do, from your views as there expressed.

No one, I believe, will question the large opportunity you have had for the study of this question from a most advantageous standpoint—namely, that of leading teacher of veterinary medicine in this country, during the last fifteen years. If your experience as a successful teacher, and the founder of a veterinary school has convinced you of the great need for a radical change in the present method of making American veterinarians, I can but concede that your opinions are entitled to the fullest consideration. I believe I have accorded them such treatment, and while I am not unconscious of the grave defects existing in the present institutions which aim to make veterinary surgeons, neither am I convinced that you have discovered the means by which all are to be brought to a general standard of excellence as regards the ultimate result of their teaching.

Your suggestion and recommendation that an association should be formed, which would embrace the principles found in the constitution of the Royal College of Veterinary Surgeons, is

one that, I believe, cannot be realized here, at least at present, on account of the serious obstacles which present themselves at the very outset.

To constitute such an association would require an act of Congress, which the profession is not powerful enough to procure. Furthermore, it is doubtful if an act giving the sole power of granting degrees in veterinary medicine to such an association would be constitutional. The individual States have a law-making power, in which is vested the authority for regulating institutions of learning. It is the inalienable privilege of each State to determine for herself what shall constitute the proper qualifications of her recognized practitioners of a profession. No other power can dictate what shall be done by a State Legislature in regard to their educational matters. It is presumed each State is best acquainted with her own interests, respecting the subject of education, and it is taken for granted that her institutions of learning are provided for the instruction of her own citizens. She can establish her standard of qualifications, but she cannot discriminate against the citizen of another State, or against her own citizens educated in another State or country, providing her standard is reached, and her regulations complied with.

The General Government is evidently in the same position. She may determine what shall constitute the necessary qualifications for her officers or employees, and may even provide institutions in which to give the necessary instruction to obtain that end, but she must at the same time concede to every State the same privileges regarding their own officers, employers and citizens.

If all the schools teaching veterinary medicine should consent to submit their candidates for graduation to a Board of Examiners appointed by a National Veterinary Association, and agree to issue diplomas to only such as were passed by this Board, the end might, perhaps, be effected. But there could be no compulsion in the matter, except each State should put such a provision in the charter of every authorized school. Otherwise, the moment any discontent arose, or any institution saw fit not to submit to the exaction, the whole matter would revert to its present condition.

A National Association of Veterinary Schools, then, is a possible thing, and no doubt could accomplish much, but at present it must be optional with the individual schools whether or not they will enter into association with the others.

Your claim that a variety of veterinary titles would no longer be a vexation to the public, should the new order of things prevail, is scarcely to be acknowledged, since there can be no law preventing the graduates of foreign schools from practising here, and using their several titles. The title to be agreed upon by the association, could in no wise prevent the granting of other veterinary degrees by institutions not members of the association.

Nor do I believe such an association as you have conceived, even if established, would be productive of the results you anticipate, as regards perfecting the methods of instruction, and securing large classes for the schools doing the most thorough teaching. The majority of students of veterinary medicine have entered upon their studies with the purpose of gaining their degrees in the shortest time possible; and that institution which receives general recognition as being a school in good standing, and which, at the same time, makes it public that the enforcement of the provisions of its curriculum is more apparent than real, is the one to receive the most patronage. Not that all the students of such institutions are deficient in their acquirements, but simply that they prefer to study where the "accidents of examination" are least likely to occur.

A. A. HOLCOMBE, D.V.S.

Fort Leavenworth, Kan., Jan. 16, 1882.

OPERATION FOR CARTILAGINOUS QUITTOR.

Mr. Editor :

In answer to Dr. Bryden's letter, which appeared in the January number of the REVIEW, relating to the operation for removing the lateral cartilages in cases of quittor, as reported in the December issue, asking the members of the profession their views, and the results which have been obtained therefrom, especially in

those cases of recent origin: Having performed the operation many times, and seeing it performed with good results by others, it may prove of interest to the profession, as well as to Dr. B., to relate a few cases, which may settle the question as to the advisability of the operation or not, although it must always be taken into consideration whether the case which presents itself shall be operated on, as I do not by any means wish to convey the idea that all cases should be treated in this way, as good results are frequently obtained by other methods, and speedy cures follow. It must be borne in mind that cartilaginous tissue is of low vitality, and its repairing process is therefore slow. It makes no difference whether it is of an acute or chronic type, if the case does not prove readily amenable to ordinary treatment, the operation is certainly indicated. By this means, the diseased parts are placed in the best possible condition for a rapid repairing process.

Case No. 1.—A roan gelding, six years of age, used as a draught horse, had received a contused wound on the outside of the near fore foot and coronet. An extensive sloughing of the deeper tissues had taken place, leaving the cartilage exposed. The wound was treated antiseptically for two weeks, was granulating nicely and to all appearances doing well, with the exception of a fistulous tract, leading to the lower part of the cartilage. It was at once determined to operate: the cartilage was removed and the wound, treated antiseptically and with firm pressure, healed rapidly, and the horse was put to work the sixth week from the time of the operation.

Case No. 2.—A black gelding, nine years of age, also a draught horse, had a quarter crack on the outside of the near fore foot, and two sinuses leading from the coronet to the cartilage, of ten days standing. The quarter and cartilage were both removed, the wound treated as before, and the patient sent to work the sixth or seventh week after, with the wound entirely healed.

Case No 3.—A bay gelding five years of age, a draught horse, had a suppurative corn on the inside of the off fore foot, resulting in cartilaginous quittor. The cartilage was removed and the wound healed, so that the animal was enabled to resume work seven weeks afterwards.

Case No. 4.—Roanish bay gelding, six years old, and a draught horse. Received a severe contused and lacerated wound on the outside of the off hind foot, from the wheel of a truck running over it. Extensive sloughing had taken place, carrying with it part of the cartilage; the wound healed readily, but a sinus formed, invading the cartilage. The remaining portion of the cartilage was removed and the patient sent to work between the seventh and eighth week.

Case No. 5.—A bay mare ten years old, a trotter, had an extensive quittor on the inside of the off hind leg, resulting from a punctured wound of three weeks standing; advised operation. It was performed in the hospital by Dr. Liautard. The wound healed in six weeks, and the mare was given a run in the country for three months, and then was put to fast work.

W. J. COATES, D.V.S.

NOTICE.

AMERICAN VETERINARY COLLEGE.

The position of Demonstrator of Anatomy in the Faculty of this institution is open to competitive examination. The candidate must be a regular graduate of veterinary medicine and in good standing. The candidate must pass a written and oral examination before a board of examiners appointed by the Board of Trustees of the college, and must deliver a lecture upon anatomical preparations, to be selected by the examiners.

The examination will take place on or about the 1st of May, 1882. Applications for examination should be directed to Prof. F. D. Weisse, M.D., Secretary of the Board of Trustees, 51 West Twenty-second street, New York city.

NEWS AND SUNDRIES.

LIVE STOCK AT NEW YORK.—Receipts of live stock at New York, during the year ended Dec. 26, 1881, were: Beeves, 679,423; cows, 5,989; calves, 177,483; sheep, 1,747,445; swine, 1,551,452.

CENSUS OF SHEEP.—The census of 1880 showed that in the United States there were that year 51,183,903 sheep, which is a mere trifle more than one sheep for each of the 50,155,773 population.—*Breeders' Gazette*.

MEDAL FOR M. PASTEUR.—A subscription, headed by several of the scientific societies of Paris, is formed to raise funds for a medal, to be presented to Mr. Pasteur as an appreciation of his scientific investigations and discoveries.

RAPID TRANSIT FOR CATTLE.—Cattle are now shipped from Pittsburgh to Philadelphia in fast trains, in order to comply with the law which forbids the keeping of live stock over 24 hours without unloading to feed.—*The Farmers' Review*.

CINCINNATI FREE FROM PLEURO-PNEUMONIA.—Dr. Farrington, of the United States Pleuro-pneumonia Commission, after inspecting the cattle at all the dairies and distilleries in and around Cincinnati during the past ten days, finds no trace of pleuro-pneumonia among them.—*Ohio Farmer*.

FRENCH PROHIBITION AGAINST PORK.—A bill to regulate the importation of pork has been prepared by the French Government. Pork, properly prepared, will be admitted under certain regulations, but the importation of uncooked chopped meat, such as sausages, remains absolutely prohibited.—*American Cultivator*.

A YOUNG MOTHER.—Mr. A. S. Trumbull, of Smith Centre, Kans., has a heifer that had a calf on the day that she was one year old, which was on the 22d day of May last. Mother and calf did well; and he sold the calf, at three and a half months old, for \$10.—*Breeders' Gazette*.

FAVORABLE WEATHER FOR LIVE STOCK.—Through all the grazing country of the West the weather has been very favorable to stock interests, and in some parts the stock is actually taking on flesh. Cattle are in good shape for going through the rest of the winter, even if it should be stormy and cold.—*Breeders' Gazette*.

FREAKS OF NATURE. —David Morris, a solid farmer, near Peoria, Kan., has a pig that has six toes on one fore foot and five upon the other. His son has a cow that recently gave birth to a calf that had only three legs and a hump on its back like a camel's.—*Farmers' Review*.

A FATAL DISEASE CONTRACTED FROM A HORSE.—A curious suit for damages has been brought against the Hestonville, Mantua and Fairmount Passenger Railway Company, by Widow Mary Loughrey. Michael Loughrey, who was Mrs. Loughrey's husband, was employed as a driver by the company, early in 1880. The horses attached to his car, it is alleged, were afflicted with glanders. Michael contracted the disease. Dr. D. Hayes Agnew and other eminent physicians were called in, but they could not control the malady. Loughrey suffered intensely for about six weeks, when he died. Mrs. Loughrey claims that the company was legally obliged to employ horses of sound health. She claims \$20,000 damages for her husband's life, sacrificed, as she charges, through the company's neglect.—*Medical and Surgical Reporter*.

PRIZES.—The Danish Society for the Protection of Animals offers two prizes for the best essays on vivisection. The question to be treated is the replacing, for medical experiments, of living animals by those freshly killed.—*Medical and Surgical Reporter*.

SPLENIC FEVER INOCULATIONS.—The inoculations of Pasteur for splenic fever, are reported, up to October 1st, on 160 flocks, containing 68,900 sheep. Before vaccination was practiced, the mortality from the fever was about one in twenty-three. During vaccination, and before its effects were fully obtained, about one in 130 died. After the operation had produced its full effects,

there died only about one in 7,000 of those vaccinated.—*Proceedings of the Medical Society of the County of Kings.*

A REMARKABLE EGG.—The *Farm Journal* of January, 1882, tells of a person in Bethlehem Centre, who on breaking an egg, found within it another perfect egg. The outside egg that contained the inner one was of the ordinary size, and from outward appearance a perfect specimen. In opening it, it was found to contain the white, a perfect yolk, and an egg about the size of a large walnut, with a shell of a fair form floating in the liquid.

VALUABLE CONTRIBUTION.—Hon. Thomas Sturgis, of Wyoming Territory, has given the public a very valuable contribution on "Cattle Diseases, Their Cause and Cure," in the columns of the *Cheyenne Weekly Leader*. It is gratifying to the veterinarian to see these subjects discussed by those outside of the profession. Mr. Sturgis writes in a manner that convinces one at once that he is thoroughly conversant with his subject and alive to its importance. He shows to the stock-raisers of the West, their dangers from enzootic diseases, by detailing the history of the invasion of these maladies in other countries. It is to be hoped that every owner of live stock—East and West—will see the necessity of the proposed protective legislation, and that they will receive through the Government and at the hands of qualified veterinarians an immunity against those losses that have time and again devastated the herds of foreign countries.

VENOM OF SERPENTS.—M. Gautier has established by numerous experiments the fact that the venom of serpents bears a certain chemical resemblance to the substances found in certain animal excretions, known as "extractive matters." The venom can be boiled with water, filtered and evaporated in the bain-marie, after acidulation, and then filtered again, without losing its activity. It can even be heated to 120° or 125° C. (257° F.) without its effects being modified. M. Gautier has diluted the venom with water, and then mixed it with certain substances, in order to ascertain if such substances would destroy its efficiency. These mixtures he has injected into animals, and has found that many substances, hitherto considered antidotes, have no such powers

whatever. Tannin somewhat modified the action of the poison, but did not annul it; neither did the nitrate of silver, though it somewhat retarded its action; perchloride of iron and various essences had no effect whatever; ammonia, which has always been prescribed as an antidote, had no effect. An interesting result of these experiments is the discovery that the venom of serpents does not appear to differ chemically from human saliva, but only differs in the intensity of its effects.—*Translated by Wm. Deming, of Litchfield, Conn., from the Journal de Medecine et de Chirurgie Practiques.*

EXCHANGES, ETC., RECEIVED.

FOREIGN.—Veterinarian, Veterinary Journal, Clinica Veterinaria, Revue fur Thierheilkunde und Thierzucht, Archives Veterinaires, Revue de Hygiene, Recueil de Medecine Veterinaire, Gazette Medicale, Presse Veterinaire, Annales de Belgique, Journal de Zootechnie.

HOME.—Country Gentleman, Medical Record, Medical and Surgical Reporter, Turf, Field and Farm, American Agriculturist, Ohio Farmer, Prairie Farmer, National Live Stock Journal, Breeders' Gazette, Bulletin of the National Board of Health.

JOURNALS.—Home Farmer, Minnesota Farmer, Iowa Farmer, Journal of Agriculture, Texas Live Stock Journal, American Cultivator, Cheyenne Weekly Leader, Massachusetts Ploughman.

PAMPHLETS AND BOOKS.—Dangers de la Trichinose (by M. Zundel), La distomatose du mouton (by the same), La depecoration (by the same), Proceedings of the British National Veterinary Congress.

CORRESPONDENCE.—W. Bryden, A. A. Holcombe, L. L., H. F. Toste, J. C. Myers, Jr., W. J. Coates, R. Harrison, G. C. Faville, R. B. Coreoran, (First Cavalry, U. S. A.), T. E. Rice, S. Wittshire, (of Natal, South Africa).



AMERICAN VETERINARY REVIEW,

MARCH, 1882.

ORIGINAL ARTICLES.

THE HORSE'S FOOT.

BY A. ZUNDEL.

(Continued from page 494.)

PUNCTURED WOUNDS OF THE FOOT.

The most serious of the injuries to which the foot is liable are those caused by foreign bodies which penetrate the middle zone, that being the most complicated portion of the structure. The symptoms will vary, according as the wound extends to the plantar aponeurosis, or only as far as this membrane; or lacerates the soft surrounding tissues without touching it; or it goes beyond this and injures the small sesamoid sheath, or even going deeper, severs the navicular bone, or its ligamentous attachment to the os pedis; or reaches the last phalangeal articulation.

A wound of the plantar aponeurosis is always very painful, especially when complicated with necrosis, in which case there is no weight put on the diseased leg, and continual lancinating pains and reacting fever are soon observed. The wound is then fistulous in character, and the suppuration then flowing from it meets with difficulties in its escape, which gives rise to a state of

general inflammation, and the foot becomes hot and very painful. If the necrosed scar becomes loose and sloughs off, being detached by suppuration, improvement soon ensues; but as the necrosis of the tendon has generally a tendency to spread, there is an increase in the character of the symptoms. If the wound extends to the sesamoid sheath from the start, the synovial fluid is observed escaping, first pure, but soon becoming milky and purulent in aspect, if the sheath has become inflamed, and easily coagulating in yellowish clots. The pain is then very great, much more so than when the aponeurosis alone is diseased. At times, by rapid closing of the plantar wound, or obstruction of the fistula, a warm swelling forms itself in the back of the coronet, which raises the skin by degrees and becomes elevated, prominent at one point, and giving a feeling of fluctuation. This swelling ends in ulceration, and allows the escape, sometimes, of an abundant synovial, purulent discharge.

The wound of the small sesamoid and of its ligament adds nothing to these series of symptoms. The probing of the tract will only determine it by the sensation of roughness which it will give; but generally one must be careful in using the probe, especially when the flow of synovia is absent. If the foreign body has pierced through the ligament, or has penetrated in the coffin joint, phalangeal arthritis is the consequence. The same result is likely to follow excessive inflammation of the foot and the macerating effect of the suppuration, in which case the tendon may soften down and give way. It may then also happen that this tendon retracts by the contraction of the muscular fibres, and can then be traced upwards to the back of the coronet, or of the fetlock, according as the giving way has taken place higher or lower.

With arthritis there is a hot, painful swelling of the whole coronet, with diffused œdema above the fetlock and the cannon, and extending upwards to the whole leg, complicating the lesion by lymphangitis and painful swelling of the lymphatic glands. Then subcutaneous abscesses are found round the coronet, with gangrene of the tissues; while again, there may be only an extensive fibro-plastic exudation, which ends in calcareous organization and ankylosis.

In the anterior zone, the only serious lesion met with is caries of the os pedis, characterized by great pain, continual lancination, loss of the use of the leg, and high reacting fever. There is abundant bloody and foetid suppuration, and the probe gives the sensation of the soft resistance of the bone, of its rough condition, and its partial fragility. The caries having most generally a progressive march, complications of separation of the hoof, to a varying extent, are often seen; the pus arrives at the surface, between hairs and hoof: and diffused gangrenes are also often seen, which extend as well to the podophyllous as to the velvety tissues.

In the posterior zone, the only serious wounds are the lateral ones, which may injure the fibro-cartilage, and become complicated with their caries; of quittor or fistula down to the lacunæ of the frog, as we have seen in suppurating corn

Nails may penetrate the posterior zone through and through, coming out behind the coronet without danger. The sub-horny suppuration may detach the frog and be the only serious complication to be met with.

As *terminations* of all these injuries we may see resolution, suppuration, gangrene, softening of the tendons and phalangeal arthritis, and as sequelæ, bony tumors of the coronet, and ankylosis. The most serious complications are the dropping of the entire hoof, the rupture of the tendons, tendinous and cartilaginous quitters, for the injured foot, and chronic laminitis for the opposite one.

IV. *Prognosis*.—This varies according to the seat of the wound. Less serious in the posterior than in the anterior zone, it is less in the last than in the middle, where the region is so complicated and the nature of the tissues so different. The depth of the wound has also some influence on the prognosis. Wounds of the plantar aponeurosis are more dangerous than those of the plantar cushion; those of the sesamoid sheath are more so than those of the aponeurosis; they are still more serious if the bones are affected; the worst of all is that of the joint. The direction of the foreign body and its simple or complicated action, will also influence the prognosis.

This, we have already said, can be established by the severity of the lameness. The nature of the foreign body must also be taken into consideration ; if blunt, which crushes the tissues, it is more dangerous than if sharp and pointed. In a flat or convex foot, punctured wounds are more serious than in a well-made foot. They are less serious in heavy than in light draught horses, as the former, though they may remain lame, are still useful. The excitable condition of a patient will also alter the prognosis. Wounds of the anterior feet are more serious than those of the posterior.

V. *Treatment*.—In all cases, the first indication is to obtain a natural cicatrization and natural repair, always more rapid and perfect than that which is gained by surgical interference. This is generally easily secured, and for this reason it is important to avoid too severe manipulations upon the injured foot. One must watch the progress of the disease, give the foot as much rest as possible, remove the shoe, thin down in its whole extent the plantar hoof, so as to avoid any pressure, and keep the foot in a cooling bath—ordinary cold water, to which often is added acetate of lead, sulphate of iron, or common salt, very beneficially. Poul-tices cold, preferable to hot, give excellent results. By this treatment the progress of the inflammation is checked and very often deep and serious wounds, even those where the tendinous sheath has been injured, are easily cured. If the lameness gradually diminishes, the case rapidly gets well ; at any rate by this treatment the inflammatory process is diminished, and the painful pressure of the hardened and thick hoof is avoided.

In the winter, when cold baths are of difficult application, chloroformed or carbolized compresses may be applied round the foot. The hoof is thus softened, and the pain reduced. At other times a blister is applied round the coronet.

If the lameness remains, or seems to increase, it is due to tendinous necrosis or caries, and it becomes necessary to operate. Must the surgeon then have recourse to an operation, and make a simple wound with his sharp instrument ? Or, is it still better to merely depend on natural resources, and assist them ?

It is difficult to lay down any special rules. If the disease is

old, if the necrosis has progressed and is still increasing, a serious operation becomes necessary. If the necrosis is recent, one must be guided by external indications. Notwithstanding, (Remault remarks,) one should not be too hasty, as the animal must necessarily be laid up for several months afterwards. It is often sufficient, in a recently punctured wound, in order to avoid complications, to modify the condition of the fibrous tissues in the whole extent of the lesion, by applying substances simply antiseptic, or still better, slightly caustic. Key employs the cold bath, in which he dissolves a pound of sulphate of copper for ten or fifteen quarts of water; by this means he has secured the speedy recovery of severe punctured wounds. For a long time, and with the same object, we have been using a mixture of equal parts of sulphate of copper and sulphate of iron, having first hollowed the foot downwards round the seat of the puncture, and the sole being pared down as thin as could be borne.

H. Bouley prefers the application of pulverized corrosive sublimate; after tracing the wound to its bottom, he fills it well with the powder. This remedy was already recommended by Solleysel, who used it in caries of the *os pedis*. Other practitioners prefer phenic acid, and claim for it great advantages. By the actions of the caustics upon the fibrous tissues exposed to necrosis, or already in that condition, a double salutary result is obtained; first, the transformation of the part, which is the seat of a progressing gangrene, into a chemical eschar; and, again, promoting the more active vascularization of the surrounding parts, and consequently their increased power of healthy reaction; conditions twice favorable to the sloughing of the eschar, and the process of repair following it.

When the wound has reached the *os pedis*, and this has become carious, a portion of the sole is removed, so that the supuration can escape, the bone is scraped off, and a dressing of carbolized alcohol applied, kept on by a thin shoe or slipper, with tin plates.

When there is a fistulous wound, through which synovia escapes, yet not purulent, caustics are recommended. Solleysel preferred these, but blacksmiths used them so carelessly that they

soon were discarded. Since, however, they have been employed again, not in powder, but as trochiscus. Rey recommends the corrosive sublimate in conic pencils, introduced to the bottom of the fistula; by them he obtains an eschar, a solid clot, from the synovia, which closes up the wound and prevents the synovial flow, at the same time stimulating the granulations which close up the fistula.

We have already said that these measures must be used only when the synovia is not purulent, as then the escape of morbid liquids may be prevented. It is not then uncommon to see abscesses forming at the back of the coronet; generally not so serious as is usually believed; not as much as those which take place in front and which are due to suppuration of the articulation. After the running out of those abscesses, sometimes the wound of the foot assumes a better aspect, the symptoms improve, and the animal recovers rapidly. Injections of a very weak solution of tincture of iodine, as well as the baths of copper or iron, are then very advantageous. Hertwig advises the introduction of a seton through the sesamoid sheath.

This treatment is not always sufficient, especially where the lesions are deep. All the diseased structures must be then exposed, and they must be removed and the wound changed into a simple one, which well dressed, will heal without difficulty. The operation is required in proportion to the extent and nature of the lesion, and if this is recent, and comparatively superficial, if a piece of the foreign body yet remains in the wound, or if its removal has resulted in the sloughing of a small piece of dead tissue, it may be sufficient, the foot being pared thin, as already advised, to simply make an infundibuliform opening, various in size, so as to expose the bottom of the wound. For that purpose the drawing knife or the sage knife is used, a light shoe is put on, and a dressing of digestive ointment, ægyptiacum, or simply alcoholic mixtures, are kept on by plates. At times it is advantageous to assist the process of sloughing by the use of caustics, sulphate of copper, Villate's solution, tincture of iodine, &c. If the wound is near or at the heels, the branches of the shoe are shortened and an appropriate

dressings is put on. Subsequent dressings require the same care. Cicatrization goes on and the hoof soon returns to its normal condition. Sometimes the surgeon is called only when the inflammation is far advanced and suppuration already established. This peculiar condition is manifested by the swelling and heat of the parts, the acute pains, and often the high fever. The wound then must be at once enlarged and the pus allowed to escape, and this is the true operation for deep punctured wounds.

The operation becomes more serious if there is separation, partial or total, of the sole or frog, with a more or less advanced disorganization of the tissues underneath. If there is escape of purulent synovia, extensive cuttings are to be made.

In olden times, to perform the operation of the deep punctured wound, the entire removal of the sole was performed, without distinction or exception, and, notwithstanding the severe pains following it. In our days a portion of separated sole or frog only is taken off. This is done by slices and only so far as necessary for the other steps of the operation.

This operation is indicated when there is great pain, continuing without regard to what treatment has been followed. It is also when the plantar aponeurosis has assumed a greenish tint, diffused in its extent, without indication of a repairing process, with the marks of sloughing of the dead structure. The instruments required are various: sage knives, single and double; drawing knives of various sizes; a directory, bistouries and forceps.

The animal, properly secured, and placed under anæsthetics, if too irritable, (Bouley), the horny structures are removed wherever the suppuration has separated them from the soft tissues beneath, or the sole is only pared down thin, as well as the horny frog in its whole extent.

This first step of the operation completed, the operator introduces a directory into the whole tract of the fistula, and with a sharp sage knife a longitudinal incision is made, following the canulæ of the directory as a guide, above and below the fistulous opening, and in the direction of the antero-posterior axis of the foot. This done, with the sage knife held in full hand, with one cut the surgeon, by a deep incision, removes the greatest thick-

ness of the tissues all round the longitudinal cut he has just made, transforming the fistulous tract into a conical infundibulum, whose apex is at the bottom of the wound. If then the aponeurosis is not yet exposed, the operator removes with the forceps and bistoury whatever tissues still cover it.

Then follows the excision of the aponeurosis. This is measured by the extent of the necrosis. As a rule, it must reach a little beyond the diseased part, and by that operation the purulent synovia finds a free chance to escape.

If the sesamoid is sound it must be left alone, but if the diathrodial surface is roughened, ulcerated and on the way to desquamation, it must be scraped off with the narrow and long drawing knife.

The complications of arthritis cannot be interfered with by the surgeon. It is by general antiphlogistic treatment, and by local and external applications that they must be treated.

The operation ended, the dressing follows, and becomes one of the most important parts of the means of recovery. As light a shoe as possible is placed on the foot, a coat of hoof ointment, Venice turpentine, or tar, is applied upon the thinned sole; pads of oakum wet with alcohol, carbolized or not, are then carefully laid on the soft parts.

Some practitioners cover them with *œgyptiacum*, (Mandel); others simply with Venice turpentine (Lafosse.)

The pads or balls of oakum must not be too thick or hard, as no pressure is needed. The whole dressing is retained by plates, and several circular straps of tape above the coronary band. Cold water baths are always good afterwards.

In the subsequent dressings one must bear in mind that the work of repair, the granulating, is more rapid in the tissues of the plantar cushion and fleshy sole than upon the bone and tendinous tissue; and that in this case it is longer than upon bone if this has been scraped. The result of this is a wound which presents various aspects in its progress of cicatization. It often has a handsome granulating appearance over its entire surface, while at the bottom there may be a clot of coagulated synovia covering the surface of the sesamoid and the edges of the wound

of the plantar aponeurosis. A free escape of synovia must always be facilitated, and often the development of the granulations has to be controlled. If the cicatrization proceeds well and regularly, dressings need be changed but seldom, being satisfied with the cold bath, with copper solutions.

Dressings can be made with tincture of myrrh or of aloes; sometimes in the center with tincture of iodine. At times caustics are again used, while at others fragments of bone or of tendon have to be excised.

The entire closing of such a wound may sometimes take place in a month; but often, even without complications, two and three are required. Complications may easily make their appearance and interfere with the cicatrization. Sometimes pieces of necrosed tissues which remain at the bottom of the wound give rise to fistulous tracts, until they are entirely removed. In this case, twice as long a time may be necessary to a cure. The pain and intensity of the lameness, after the operation, do not accurately indicate the nature of the disease; the general phlogosis, especially the synovial inflammation, always causes a special acute pain, which for from three to six weeks may prevent the animal from resting his foot on the ground. This pain is entirely independent of the process of repair, and must not alarm the veterinarian. While the reacting fever is absent, and there is a good appetite and no swelling in the region of the coronet, the progress may be considered satisfactory.

After the cicatrization of the plantar wound made during the operation, the parts may return to their physiological condition or nearly so; or, on the contrary, remain in an entirely abnormal condition. Often, indeed, the sesamoid sheath may become obliterated, the diarthrosidal surface has lost its smoothness and there is no more sliding upon it, the tendon having become united to it. The animal then remains lame, and cannot be utilized except in walking; if coronary ankylosis, ringbones are detected, and the application of firing is indicated. Sometimes neurotomy gives excellent results.

(To be continued.)

TRICHINÆ,

A LECTURE DELIVERED BEFORE THE STUDENTS OF THE
AMERICAN VETERINARY COLLEGE.

BY F. S. BILLINGS, V. M.

(Continued from page 502.)

TRICHINIASIS AMONG SWINE.

Although the recorded observations of the calcified trichinæ in the muscles of man may be said to date back to about 1821, without any knowledge of their nature, however; and although the capsule was described, as we have seen, by Hilton in 1831, and the parasite by Pajet and Owen a few years later, still it was not until 1847 that Leidy discovered and described similar formations in the muscles of swine; the connection between those of man and swine being unquestionably established by Zeuker, of Dresden, in 1860. Previous to this discovery of Zeuker these parasites were looked upon more as curiosities, exciting the interest of naturalists, than as the ætiological momenta to a most serious disease. Their direful nature was soon, however, more than satisfactorily established by numerous epidemics, to be hereafter noticed. It is to German investigation that we must look, almost entirely, for any authoritative statistics with reference to the numerical percentage of infection with these parasites, not only in our own family, but swine, for in no other country is there at present anything approaching a systematic examination of pork, and even in Germany there is much room for improvement, as there is in this entire field, which I am endeavoring to impress upon the people of this country, viz., *the relation of our animals and their diseases to human health.*

The following statistics are taken mostly from Virchow's "Archiv für path. Anatomie, etc.;" the "Vierteljahrsschrift für gerichtliche Medicin;" the "Deutsche Zeitschrift für Thiermedizin;" the "Veterinary Reports of Saxony," the "Magazin für Thierheilkunde," and its successor the "Archiv für Thierheilkunde," and the "Mittheilungen aus der Praxis der Preussischen Staate."

Dr. Petis, of Rostoch, gives the following statistics with reference to the examination of hogs at that place :

1869, whole number examined.....	5,457.....	Trichinous.....	1
1871, " "	6,520.....	"	2
1872, " "	6,555.....	"	0
1873, " "	6,441.....	"	3
1874, " "	6,731.....	"	2
1875, " "	7,222.....	"	5
1876, " "	7,165.....	"	0
1877, " "	7,562.....	"	2
			15
53,653			

Infected.....1 in 3,543.

TRICHINIASIS IN GERMANY.

Dr. Uhde, of Brunswick, reports :

Whole number examined, 111,806. Trichinous, 29.

For previous years the percentage has been as follows :

In 1866-67 there was found trichinous 1 hog in every	6,700
" 1867-68 " " " "	5,700
" 1868-69 " " " "	14,500
" 1869-70 " " " "	15,300
" 1871-72 " " " "	13,387
" 1872-73 " " " "	4,874
" 1873-74 " " " "	5,129
" 1874-75 " " " "	7,004
" 1875-76 " " " "	13,183
" 1876-77 " " " "	7,127
" 1877-78 " " " "	5,879
" 1878-79 " " " "	10,397
" 1879-80 " " " "	3,857

PRUSSIA.

No. Hogs Examined.	Trichinous.	Measles.	No. of Examiners.
1876.....1,728,595.....	800.....	4,705.....	11,915
1877.....2,057,272.....	701.....	5,434.....	12,865
1878.....2,524,105.....	1,222.....	6,165.....	16,251
1879.....3,164,656.....	1,938.....	9,669.....	17,413

HAMBURG.

1878.

Of 35,510 American hams.....397 were trichinous.

14,003 " sides.....85 "

17,113 European hams.....3 "

222 " sides and shoulders and

10,838 hogs, none were found.

1879.			
Of 79,764 American hams.....	1,087	were trichinous.	
22,749 " sides and shoulders....	196	"	
28,710 European hams.....	2	"	
16,204 " hogs.....	1	"	
1880.			
Of 55,008 American hams.....	566	"	
23,589 " sides.....	270	"	
49,943 European sides, hams, etc.....		free.	

In 1872 and 1873 numerous American sides and hams were found infected at Frankfort.

At Leignitz 26 American hams were examined and but two were found infected.

In 1873 and 1874 at Magdeburg, 7,000 to 8,000 swine were examined, and but two found infected.

At Stettin, Erfurt and oþer places, American pork came in for its share of condemnation.

1875 and 1876 at Frankfort, out of 8,000 swine examined, 4 were infected.

1875 and 1876 at Gulen, 16 in 1,800 swine examined, 1 was infected.

At Minden, 59 pieces of American pork were found diseased.

Statistics with reference to the per cental infection of swine with trichinæ in England and France, as well as other continental countries, seem to be entirely wanting.

* Of 622 American sides examined at Rostoch, 12 were found infected.

Of 210 pieces examined at Gothenburg, 8 were found infected.

At Elbing 2 per cent. of those examined were found trichinous.

In Schleswig-Holstein, of 5,673 pieces examined, 47 were infected.

Examinations made in Germany in 1877 report 343 cases of infected American pork, and 183 cases of trichiniasis among human beings.

Under date of February 5, 1881, the *Sunday Herald*, of Bos-

* Heller Zienesson's Handbuch d. Pathologie, III., p. 411.

ton, published a special dispatch from Paris, with reference to an excitement which had been created at Lyons, France, with reference to the large number of trichinæ which had been found in some recently arrived American pork.

Prof. Mueller, of the Royal Veterinary Institute at Berlin, Prussia, wrote me in December, 1880, that of 38 American hogs which constituted a part of a recent shipment to Germany, 14 had been found highly trichinous by the inspector at Dresden.

* TRICHINIASIS IN ITALY.

So long ago as the 18th of February last, a special meeting of the Royal and National Veterinary Association of Italy was held to receive a communication from Signor Volante, the municipal veterinary surgeon of Turin. Volante reported that trichinæ had been discovered in some *American hams from Cincinnati*, which had been sold in Turin, and that 4 per cent. of the lot were infected. The Association addressed a memoir to the Minister of the Interior with reference to a general measure towards organizing an efficient meat inspection throughout the kingdom.

Excited by all this testimony, and by the demands of the pork interest of this country, our Government took up the question, but like almost everything else it does in connection with the suppression of animal pests, or animal hygiene, it took hold of the wrong end of the rope to begin with.

It wrote to our consuls and other foreign representatives for reports, and one who reads them may readily see that if, as they say, nationalism plays the most important role in the desire of foreign Governments to render difficult the importation and sale of American pork in their respective countries, it plays a far more important part than the desire of our own Government to get at exact truth.

It will not do for foreign representatives of this country to assert that there *are no trichinæ in American pork*, as has been done, in the face of the facts of direct observation.

It will not do for our State Department to publish a lie to the world, aye, a self-evident lie, as it did when it gave out a

* Veterinary Journal, Vol. 9, p. 286, 1879.

report with reference to the healthy condition of American pork, clauses 8, 9 and 10 reading as follows :

“ 8. That the percentage of American hogs infected with trichinæ is in all probability, by reason of the superiority of breed and feeding, much less than that among the hogs in any other country.

“ 9. That the freedom from trichinosis of the two great pork consuming centres of the West, Chicago and Cincinnati, furnishes the strongest possible evidence of the purity of American pork. In Chicago, for a series of years, during which 40,000 deaths were reported, with their causes, only two cases of trichinosis were reported. In Cincinnati during the same period not a single case was reported.

“ 10. That the reported cases of trichinosis have resulted from eating uncooked meat, shown to be inferior or rejected, and that thorough cooking entirely destroys this parasite and removes all danger in this regard from eating pork.”

Let us examine these clauses from this wonderful State document in detail, and we shall see that whoever wrote it knew less about trichinæ than about the truth.

First.—Our Government had no right to issue a State document asserting that our pork contained less trichinæ than the hogs of any other country, until it had instigated a large series of examinations (made in the interest of scientific truth, not the American Government or people) at different places, and thus approximately establish what the real percentage of infection is.

Second.—“ Superiority of breed or feeding ” are two things which, as far as we know, have no influence on the inoculation of pigs with trichinæ. Of the breed certainly not, and as certainly not of feeding, as at present carried on, even in the West.

Third.—If the pork consumed at the packing houses of Chicago and Cincinnati is so free from trichinæ, why not publish the figures, showing the examinations made and by whom ?

Perhaps it was the examination of 400 hogs by Dr. Paton at Chicago, April, 1881, among which he could not find a case of trichinosis, which led to this assertion ; but while we personally doubt the accuracy of Dr. Paton's examination, still the re-

sult of but 400 examinations is not sufficient for a Government to support itself with, and to assert that trichinæ scarcely exists in our pork.

Fourth.—It is known that the Germans have a strong liking for uncooked, but smoked ham, and spiced hashed pork; owing to this they have more cases of trichinosis than any other people, but because they do this is it any reason why we should send them infected hogs, or that their Government should not take the most stringent measures to discover whether it did contain trichinæ or not, and act thereby? A German has the same right to eat raw or smoked pork as an American or an Englishman has to eat raw or rare beef, even though he may get a tape worm thereby.

Let us see if foreign Governments are not justified in looking upon American pork with suspicion, and our own equally bound to spare neither labor or expense in the endeavor to find out where trichinæ first come from.

These examinations were not made upon selected lots of swine, or upon lots from any one place, but the pieces to be examined were collected from lots of swine, at such days and times as I could find opportunity to examine them. The swine came mostly from the West, however. It is greatly to be regretted that the exact place where some of these lots came from could not be ascertained, and exact examinations made of the manner of feeding, surroundings, etc., but such systematic work must await a future day and abundant material support from the different State Governments.

The following is the result of my examinations in the summer of 1879:

Lot.	No. Swine Examined.	Non-infected.	Infected.
1.....	47.....	44.....	3
2.....	48.....	46.....	2
3.....	72.....	62.....	10
4.....	60.....	56.....	4
5.....	226.....	210.....	16
6.....	192.....	179.....	13
7.....	100.....	96.....	4
8.....	81.....	80.....	1
9.....	95.....	94.....	1

10.....	93.....	89.....	4
11.....	98.....	90.....	8
12.....	300.....	275.....	25
13.....	201.....	188.....	13
14.....	192.....	187.....	5
15.....	200.....	184.....	16
16.....	257.....	252.....	5
17 ^a	238.....	225.....	13
18.....	163.....	154.....	9
*19.....	26.....	25.....	1
†20.....	12.....	11.....	1
<hr/>		<hr/>	<hr/>
2,701		2,547	154
Percentage, 1 in 1,754.			

TETANIC SYMPTOMS IN INFLUENZA.

BY F. H. PARSONS, D.V.S.

If it is not going too far back into the past, I should like to call the attention of the readers of the REVIEW to a form of influenza, if it *is* influenza, of which I had seven cases in the two months ending December 31st, but of which I can find no mention in any of my books.

I describe one case, which is a type of all the rest:

On Nov. 30 was called to see a seven-year-old bay carriage mare, belonging to a gentleman of Poughkeepsie, which, I was told, had a slight attack of "this distemper that's goin' 'round" about a month before, but from which she quickly recovered with no treatment, and had been regularly driven ever since. On Nov. 29 she had not appeared as well as usual, but was driven; in the evening refused her feed; same next morning.

I found the animal so debilitated as scarcely to be able to stand. Pulse 92; temperature $106\frac{3}{4}$; no swelling of limbs or about eyes; no discharge either from eyes or nostrils then or afterward, but I immediately noticed well marked tetanic symp-

* Vermont hogs.

† Hogs killed for owners near Boston.

toms, protrusion of membrana nictitans, cocking of tail, etc. The jaws were also set so that it was only with the greatest difficulty I could administer a ball.

Not knowing exactly what to do I prescribed T. E. Physostigma, gttx, spts. vini., recti., ζ iv, every two hours. Next morning tetanic symptoms had almost entirely disappeared, and the mare made a good recovery under ordinary hygienic and stimulating treatment.

The other cases were almost precisely like the above, and all made speedy recoveries.

OPIUM POISONING IN THE HORSE.

BY M. T. TREACY, M.R.C.V.S.

The following interesting case recently occurred, and, not having seen any similar ones recorded, I venture to enclose it for publication:

On my arrival at my office, (having been absent all day), on the evening of January 2d, I was requested to attend at a stable, where, the messenger said, a horse had gone crazy. I found my patient, a fine six-years-old bay gelding, about 1,200 pounds, in a loose box, with his head pressed forcibly against the wall, his limbs describing automaton movements, as if walking, his ears erected on the slightest sound, body covered with sweat; pulse 70, soft and full; respiration 78; temperature 101; caloric of extremities good; pupils much dilated. Occasionally the nose would be extended upward against the wall as far as he could reach, and remain in that position for one or two minutes, the disposition to go forward so well marked, that in the treatment, when active exercise was ordered, it took two men on each side to restrain his movements to a quick walk, and he couldn't be made to stop, unless by allowing him to rest his head against a solid body. He was mean in disposition and ugly to approach.

HISTORY.—Been treated for intermittent colic all day in my absence and had received eight or ten drenches, the contents of which I could not learn.

DIAGNOSIS.—Opium poisoning.

TREATMENT.—Ice to the poll, small doses of whisky, ether, ammonia or gin every hour, large doses of coffee, thirty minutes' exercise in every hour in the cold air, a liberal supply of cold water, of which he partook freely. All these symptoms became more aggravated up to midnight, when he fairly trotted a four minute gait, with his head so forcibly pressed against the stall as to threaten its destruction. Hoping against hope, I continued the above treatment all night, and in the morning had my patient convalescent, with the exception of nausea next day. He appeared none the worse, and went to work twenty-four hours after recovery.

CHRONIC INFLAMMATION OF THE STOMACH.

BY R. B. CORCORAN, V.S.

[The following is sent to us through the kindness of the Quartermaster-General at Washington, Gen. Meigs, for which our sincere thanks are respectfully tendered.—ED.]

FORT WALLA WALLA, W. T., }
December 31, 1881. }

To the Quartermaster General :

SIR.—I have the honor to report a case of chronic inflammation of the stomach that might be interesting. Was called to attend a mule in Q. M. Dep't, showing symptoms of colic. On examination I pronounced it ruptured stomach, as all symptoms accompanying such were present; attempts at vomition being continuous, sometimes succeeding in discharging flakes of mucous membrane from stomach. I kept the animal under the influence of opiates for a few hours, when it died.

On post-mortem examination I found abdominal cavity partly filled with bloody serum. The smaller intestines showed symptoms of recent acute inflammation. The lungs were congested and showed previous attacks of pneumonia; in the left ventricle of heart found a large fibrous clot, almost filling the cavity. On

opening the stomach it was empty, with the exception of some oil (administered previous to my being called), and a piece of hoop-iron much corroded, about one inch long and half inch wide. At the pyloric extremity the bilious coat had sloughed considerably, and portion of the wall was much blackened. I therefore concluded that the piece of iron had, by continued irritation, caused chronic inflammation, from which the animal died.

A VISIT TO BARNUM'S WINTER HEADQUARTERS.

BIRTH OF THE BABY ELEPHANT.

BY M. BUNKER, B.S., D.V.S.

It is not the good fortune of all the readers of your paper to be able to see Barnum's late arrival, nor to glean all the facts which one can, who has had the chance to spend an afternoon at the winter quarters of the great American showman, and have a quiet talk with those in charge of the animals.

I had the good fortune to make a trip to the winter quarters a short time after the advent of the second baby elephant into the world, and while there I gained some information which I hope you may think worthy of a place in your REVIEW.

The babe was born at 8 P. M., February 2.

About three o'clock that afternoon the keepers noticed the appearance of a secretion in the mammary glands, which at that time was watery in character. About six P. M. the Queen was noticed to have some little labor pains. They were, however, slight in character, and not very frequent, not interfering with her appetite, as she fed up to the time of delivery.

About eight she lay down on her hind parts, and in this position the little stranger was delivered, the actual time of delivery being only about ten minutes.

As the foetus passed through the pelvis and over the ischial border, its form was distinctly outlined, and it was so high up that to Mr. Arstingstall it seemed as if it were coming through the rectum. Such was not the case.

As soon as the babe in the membranes was expelled from the vagina, the mother, by rubbing her hind legs, tore the umbilical cord; then, with a blow from one of her front feet, she ruptured the envelopes. After she did this, she got down on her knees and with her head at the junction of the trunk, rolled her baby out of the membranes. Rising, she placed her fore foot upon the chest of the little one, and with one or two gentle pressures started respiration in the babe.

The little one, two hours after birth, weighed 145 lbs., and is about two-thirds of the size of Columbia, born last year. The little one is of a light mouse color, with a pinkish hue around the eyes, and is bright, active and full of play. The period of gestation in the elephant has always been given as two years, but here are two cases which show the period to be about twenty months, Hebe carrying her young twenty months and twenty days, Queen carrying her young a few days less than twenty months; the time in both cases being reckoned from the last copulation. In both instances the male was allowed access to the female six or eight times during a period of six weeks, whenever she would receive him.

At the time of visit, four days after delivery, the mother and babe were doing finely. The secretion of milk was becoming more in quantity and better in quality. It was of the color of cow's milk, but much sweeter-tasting, like that of a cocoanut. The amount of secretion was about that of a good cow.

The mammæ are situated in the pectoral region, and occupy the same relative position as do those of the human family, the nipples, however, extending at an angle of 45° behind the fore leg. One nipple has eleven issues and the other thirteen.

The young elephant, contrary to the general opinion, grasps the nipple with his mouth, rolling his trunk back over his forehead.

I had hoped to be able to give you a full account of the placenta, as I expected to see it in this city, but it has not come as yet. I will, however, say that I found there were five cotyledons, each about six inches in diameter, an umbilical cord between two and three feet in length, and having three arteries and three veins.

AMERICAN VETERINARY COLLEGE HOSPITAL.

REPORTS OF CASES.

BY R. H. HARRISON, D.V.S. House Surgeon.

CANINE PATHOLOGY. RABIES CANINÆ.

Four well-marked cases of rabies have been admitted and died in the hospital during the summer. The symptoms and post-mortem examinations of each case were well marked.

CASE No. 1—Was a half-breed dog—a cross between a bulldog and a mastiff. About a year ago he was under treatment for a gun-shot wound of the head. When requested to see him he had been ailing for two days, lying in the back of his cage, refusing food, solid or liquid, with his mouth open and abundant saliva running from it; the tongue of a dirty color, and, at the time of visiting, was partly paralyzed behind. There was no doubt as to the nature of the disease; diagnosis made accordingly, and, as he was well secured, he was left alone to his fate. He died the following night, and his body was brought to the college for post-mortem. This revealed the brain congested, with effusion into the lateral ventricles; the plexus choroides were hyperæmic; the brain was softer than normal, and its membranes were injected; the lips and tongue were excoriated and of a leaden hue, and were covered with particles of straw and lime; the fauces were but slightly congested; the trachea was filled with frothy mucus, and the lungs were engorged with blood and almost black; the heart was flabby and contained a little fluid blood, blackish-red in appearance; the stomach was shrunken and contained two ounces of coffee-colored fluid; its mucous membrane showed patches of congestion; the spleen was enlarged slightly by engorgement; the kidneys were softer and deeper in color than normal, and the bladder was closely retracted within the pelvic cavity; the whole of the intestinal tract was empty and rather yellowish. The bullet, which could not be extracted at the time he was shot, was found imbedded in the muscles of the larynx.

CASES No. 2-3.—Were two bull-terriers, a bitch and a dog.

Both belonged to the same party, and were affected a week after the other. The bitch was first brought to us partially paralyzed in the hind extremities, which gave rise to a staggering gait. It was reported that she had not been her usual lively self for a few days, and a day before she was brought to us, could neither eat nor drink. She had paralysis of the muscles of the lower jaw, which kept her mouth open, with a profuse flow of saliva; the buccal cavity and the tongue were dark red in color; the eyes were dull and squinting, there being slight opacity of the cornea; the countenance was expressionless, save wrinkled eyebrows, which gave her a hideous look. She was placed in a kennel by herself, and remained quiet, curled up in a corner under the straw. The next morning she was evidently worse, the paralysis having increased to such an extent that she could scarcely stand. Eighteen hours afterwards she died without a struggle. Autopsy showed well-marked lesions: the meninges of the brain were highly injected, with effusion between them; the brain was softened and but slightly congested; the mucous membrane of the tongue and the buccal cavity were of a brownish-red color; the pharynx was highly inflamed; the air passages were highly congested throughout, and the lungs engorged with blood; the heart was empty; the stomach contained a little dark fluid, and its mucous membrane showed two patches of congestion; the upper portion of the intestines were empty, while the small colon was filled with liquid fæces; the kidneys were softened and somewhat fatty; the bladder was closely retracted within the pelvis; the spleen was enlarged to twice its natural size, and was blackish-green in color.

The dog was, for precaution, chained up, and the owner was to report any change that showed itself. For three days nothing was observed that was in any way suspicious; on the fourth day the dog became moody and sad, refused his food, and hid himself under his straw bedding. The next morning, on pushing him from his hiding-place, he was noticed to stagger a little, and was immediately sent here; the man that brought him said he was worse when he arrived than when he started. He presented symptoms identical with the bitch, and died twelve hours after being

admitted. Post-mortem examination revealed similar lesions as were found in the bitch, with the exception of less congestion of the meninges.

CASE No. 4.—This subject was a Skye terrier, a great pet of several ladies. Naturally affectionate, he had, however, a certain hatred for some persons, and was cautious of new acquaintances. He was noticed first becoming exceedingly restless, constantly moving, especially at night, and showed an *insatiable* desire to lick. He begged to be taken up and, if gratified, would lick the hand until driven away. Dr. Liantard was requested to see him. As he came to the house, the dog, who had not been over friendly with him, ran to the doctor and begged to be taken up, to go upstairs. The gentleman did so and, in going up, noticed the great desire of the little fellow to lick. This was the only peculiarity which could be found. He seemed to be entirely well otherwise, and ate and drank comparatively well. He was said to have been bitten two months ago, while in the country, but the dog which bit him is said to be alive and well! And while the suspicion of rabies might have been entertained, there was scarcely enough in the history to sustain it; but it was strengthened, however, by a peculiar circumstance: As Dr. L. was going to leave the house, without provocation the dog flew at his heels and tried to bite him. The case was then more evident, and the dog was removed to the hospital. He was placed in a cage, near other dogs, and closely watched. His first action was to hunt over his bedding, and eat considerable straw; then, as if startled, would prick up his ears and listen. His eyes were bright, and had a peculiar far away look at times. An active cathartic was administered, and he was left quietly alone. At the usual afternoon feeding he seemed greatly excited by the barking of the other dogs, and began to gnaw at the woodwork of his cage; later in the evening, approaching him as silently as possible, he was seen sitting on his haunches, intently watching something in the straw. When spoken to he would look up as though he only partially heard you, and would again resume his watching. Irritating him with a stick thrust into his cage, he would snap at it very viciously, until he was in a perfect fury. His cries at this time were taken

particular note of, so as to be able to detect any change in voice. The next morning he was somewhat exhausted, having gnawed all the woodwork of his cage, and scratched the wire netting until his paws were bleeding; when irritated, was more violent than before, and showed a characteristic change in his voice. About noon he was purging very freely, and, at the slightest irritation, he would have a paroxysm of rage. Other dogs placed before him would only add fury to his madness, while they themselves would shrink away terrified. Towards evening he became exhausted and kept quiet during the night; the next morning he was paralyzed, and died at eight o'clock in the evening.

On post-mortem examination, the brain and superior part of the spinal cord were inflamed; the brain substance was softened; the conjunctiva was highly injected, as well as the vessels of the cornea; the fauces and buccal cavity were of a normal color, although the tongue was blacker than usual; the lungs were engorged, and the trachea was filled with frothy mucus; the heart was flabby, and contained semi-fluid blood, blackish in color; the stomach was distended and impacted with straw, bits of wood, carpet tacks, pieces of string and buttons—altogether they weighed four ounces; the mucous lining was eroded and inflamed; the liver and spleen were both enlarged and engorged; the intestines contained fluid fæces mixed with straw and wood; the kidneys were slightly darker than normal; the bladder, as in the other cases, was closely retracted.

RUPTURE OF THE BLADDER IN A MASTIFF.

A large English mastiff was brought to us for autopsy. The history of the case is quite interesting, and probably gives a correct idea of the cause of the lesion. The dog had been brought from the country to cover a bitch, but when he arrived it was found that she was not yet in desire, so he was withheld from her. Being chained up, he became very uneasy, and spent the day in trying to break loose. The next morning he was found free, having broken his chain during the night, and had evidently

tried to have connection with the bitch. During the day he made frequent attempts to copulate with her, but was each time repulsed. It was noticed at his last attempt that he suddenly fell, and lay cold and trembling. Nothing was thought of this at the time, and he was put at once on a bed of straw and left for the night; the following morning he was found dead. Autopsy revealed the peritoneal cavity filled with fluid, which was found to consist principally of urine; the bladder was relaxed and intensely congested, and showed a rent on its interior surface, near the fundus, an inch and a quarter long; the lower portion of the small colon and the rectum were impacted with hardened fecal matter, and there was also well marked symptoms of peritonitis.

Is not the probable explanation of this lesion the fact, that at the time of copulation, having a full bladder and impacted rectum, the violent exertion and venereal excitement were sufficient to cause the rupture of the walls of the viscus?

VESICAL AND URINARY CALCULI IN AN OLD DOG.

On the afternoon of the 14th of December, an old dog, blind, and weighing about forty pounds, was brought to the clinic, with the following history: For the past few days he had constantly been trying to pass his urine, straining violently at each attempt, but failed in micturating or passing any feces; his belly had begun to swell and gradually grown larger. About a year ago it was reported he had a similar attack, and was said to be promptly relieved by the use of sweet spirits of nitre. The animal lay prostrate on the floor in a comatose condition. The abdomen was distended and presented a large tumor, smooth, placed more towards the right side of the abdomen when the animal was made to stand up, movable from side to side; this enlargement was hard and tense, resembling in general appearance and feeling a large fibrous growth. Taking into consideration the condition of the patient, his age, his infirmities, the owner was advised to have him destroyed, which was complied with—chloroformization.

POST-MORTEM.—Making an incision along the median line,

from the pubes to the sternum, the bladder protruded, distended to its fullest capacity, the size of a man's head. The bladder and the urethra were then removed entire, and six pints of urine slightly decomposed and dark colored were evacuated by a canula. Opening the bladder, a large number of calculi were found, varying in size from a large pea to minute particles. The canal of the urethra was literally packed with calculi, especially in its bony portion; the walls of the bladder were hypertrophied, and the mucous membrane was slightly congested; the kidneys were enlarged and softened, a small quantity of urine was present in the hilus of each; one calculus, the size of a pin's head, was found in the pelvis of the right kidney, and two, not quite so large, were in the left. The urethral tract was highly inflamed throughout; the prostrate gland was enlarged and diseased, also the spleen showed deposits; the calculi, which numbered over four hundred, were composed principally of the triple-phosphates. The other organs were healthy. A report of the microscopic examination of the diseased structures will be given in another article.

MALIGNANT PURPURA HEMORRHAGICA.

By M. BUNKER, B.S., D.V.S., House Surgeon to A. V. C. Hospital.

The case which I wish to report for the REVIEW is neither an uncommon one nor was the treatment especially new, yet the results were so satisfactory that I think it worthy of a place in the REVIEW.

November 29, 1881, I was called to see a chestnut gelding which had been suddenly taken ill, and was apparently suffering very much, having some epistaxis. Pulse, 60; temperature, 105. The following history was obtained:

The horse some two or three weeks previous had had a slight attack of pulmonary congestion, from which he speedily recovered and resumed his work in about a week, eating well and apparently in good condition.

About eleven o'clock in the forenoon of the day I saw him he

was noticed to be breathing fast and stertorous, with a bloody discharge from the nostrils, and getting up and down as if he had colic; when I saw him I found him in a recumbent position. An examination of his nostrils showed petechial spots. A diagnosis of purpura hemorrhagica was made and the animal sent to the hospital. When admitted, he was very weak, legs, head and nostrils somewhat swollen, and with difficulty was taken to the stable and put in a box stall.

He was immediately placed under the administration of a strong decoction of coffee combined with strychnia. The dose given was coffee $\bar{3}$ vi., strychnia in solution, grs. ss., every hour. This treatment to be kept up night and day. November 30, the temperature has come down to 103, and the pulse to 60. The same treatment is continued.

December 1.—Temperature, 102; pulse still remains at 60; during the past night some slight symptoms, due to the exhibition of the strychnia, have been noticed in the shape of slight muscular contractions and tetanic spasms. The administration of strychnia is stopped for about four hours and then resumed. Up to this time the horse has not had much appetite, but is now beginning to eat oats and hay very well. The swellings of the extremities are not very large, being almost entirely on the hind legs, and more on the left than on the right; nose about the same. The discharge from the nose still continues. At night the administration of medicine was changed to every two hours. The animal eats better.

December 2.—Temperature, 101; pulse, 60; same general condition of the swellings. Medicine is given every four hours.

December 3.—Temperature, 100 $\frac{2}{3}$; pulse, 48. The animal is eating well; the swelling of the nose is about the same; discharge quite profuse and with it some pieces of the mucous coat of the Schneiderian membrane came away when the crusts are removed. The nasal douche is applied, and an application of glycerine made to the membrane.

The swelling of the legs seems to be diminishing, but all over the hind legs from the lower third of the metatarsi to the hoof there appear little spots which give to the white stocking an ap-

pearance similar to that presented by a firing with points. The medicine is now given every six hours, but the strychnia has been increased to grain doses.

December 4.—Temperature, $100\frac{3}{4}$; pulse, 48; animal is generally better. Medicine is given every six hours.

December 5.—Temperature, 101; pulse, 42. The administration of coffee is stopped, and mineral tonics, in the form of sulphate of iron, combined with grain doses of strychnia, are given. The animal now eats from six to eight quarts of oats per day.

December 6.—The temperature and the pulse are normal, but the discharge from the nose is still considerable, so that when cleaned, large crusts, $2\frac{1}{2}$ inches in length and $\frac{1}{2}$ inch thick, are removed from the septum nasi.

The legs are about the same, but the spots which have been showing themselves around the fetlock and on the posterior face of the phalanges, show a tendency to run together and slough, so the leg is bathed with warm water and a poultice applied to them, to hasten the process.

December 7.—During the night the horse had little colic pains, probably due to overfeeding, so that spirits are administered as required; alcoholic, mineral, vegetable and nervous tonics are given.

There have been sloughs from both heels, much larger on the near than the off; these are dressed with carbolic spray and granulation stimulated; the nose is kept clean.

December 8.—There has been a rise of temperature to 102, pulse, 40; this may be considered as a result due to the sickness of yesterday. It being hard to keep the nose clean, fumigation is resorted to as a means of loosening the scabs. The same medicinal treatment is kept up until December 12, when drachm doses of sulph. iron and iodide of potash and one grain of strychnia are given three times a day.

The surfaces upon the septum nasi are now granulating nicely, and are kept down by the application of nitrate of silver in the stick.

The spots upon the hind legs are dressed antiseptically, and the edges cauterized twice a day.

He is now eating nine quarts of oats per day, with full ration of hay.

December 30.—Is sent out-doors for exercise; the wounds have healed so nicely that they have been dressed but once a day, and from this date are only dressed every other day.

The horse is exercised every day until January 18, when he is sent home with directions to be brought back about twice a week for dressing.

February 18.—The horse is brought back for dressing, and there being only a very small spot still unhealed he is discharged, some dressing powder being given to the coachman, with directions to put him to work in a week.

At one time there seemed to be danger of perforation of the septum nasi, which would cause the animal to roar and render him worthless to his owner. This danger has all subsided and the animal at present breathes perfectly.

SOCIETY MEETINGS.

NEW YORK STATE VETERINARY SOCIETY.

The sixty-seventh regular monthly meeting of the New York State Veterinary Society was held at the American Veterinary College, Tuesday, February 14, 1882, at 8 o'clock P. M., with the President in the chair.

The following members responded to the roll call:—Drs. Liautard, Lockhart, L. McLean, Foote, Duane, Bunker, Harrison, Fields, and R. McLean. The minutes of the previous meeting were read and adopted. Dr. Crane was proposed for membership. A motion that his name be subjected to the action of a committee appointed by the President, was carried, upon which Drs. Coates and Bunker were authorized to serve, and report at the next meeting.

Dr. Bunker followed with a paper on anorexia, in which he stated that “technically speaking, the condition or result of conditions, anorexia does not exist as a pathological condition by itself, yet at times it does assume such phases, and shows such

pertinacity as to almost baffle the efforts of the practitioner to relieve the condition." The causes of anorexia he divided into "the exciting" and "the mechanical," among the former mentioning disease, over-feeding, poor feed, poor hygienic conditions and over-exertion. For treatment, he advised the removing, if possible, of the promoting cause, whether it be pathological, physical or mechanical, and then, by the aid of medicinal remedies in the shape of tonics, stimulants, alteratives, etc., build up the system and restore its normal tone. He also referred to the value in these cases of change of stable and surroundings, and the change of feed, which are often sufficient to entirely overcome the trouble.

The paper came to a close with reports of several cases of anorexia from various causes, which had come under the writer's observation at the American Veterinary Hospital.

An interesting discussion followed as to the cause in cases of anorexia where the animal's vigor was unimpaired, though failing in condition.

Dr. Lockhart cited cases in which the diagnosis of acidity of the stomach as a cause proved correct, as the treatment by alkalis relieved the complaint. He recommended the use of carbonate of potassa in these cases. Dr. Foote considered that anorexia in the horse might arise from the same cause that so often produces it in the human being, a functional inactivity of the secretory glands, or of the intestinal tract, especially the liver. He recommended a trial of podophyllum combined with belladonna, nux vomica or other remedies as indicated for this condition. The questions arose, could torpidity of the liver in the horse be diagnosed, and is podophyllum of any value as a veterinary remedy, but no satisfactory conclusions were arrived at for either. Dr. Liantard spoke of that class of cases of anorexia in which the loss of appetite seems to be remittent. He considered the cause in such cases to be a neurotic condition of the digestive apparatus, and advised, as treatment, the use of narcotics. Dr. Liantard presented a specimen sent to him by Dr. McInnes, of Charleston. The only history accompanying this was, that a horse was affected with loss of appetite; a cathartic was adminis-

tered, and the animal died the next morning. The specimen was taken from one of the heart cavities, which one not being stated, and appeared to be a large anti-mortem fibrinous clot. Further history of the case is to be elicited and the specimen is to be subjected to a pathological examination.

A motion that the matter of obtaining a State charter be laid on the table was carried.

A vote of thanks was tendered the essayist.

Dr. Liautard volunteered to read an essay at the next meeting of the Society.

Motion to adjourn was then carried.

W. H. FOOTE, M.D., V.S., *Sec.*

MONTREAL VETERINARY MEDICAL ASSOCIATION.

The regular fortnightly meeting of this Association was held in the lecture room of the Veterinary College on Thursday evening, January 19th, Mr. M. C. Baker, V.S., in the chair. After preliminary business, Mr. Joseph Skally, Boston, read a communication in which he described a case of peripura hemorrhagica treated by himself. The treatment consisted of generous diet and repeated doses of chlorate of potash. The animal recovered perfectly under his treatment. The case elicited considerable discussion among the members. Mr. Paul Paquin described an interesting case of a monster calf which came under his notice last summer, which consisted of a fleshy mass resembling a mole. Mr. Donald Campbell, St. Hilaire, then read a most interesting paper on the "History and Breeding of the Horse." He went very fully into the history of the different breeds of animals now in use for domestic and other purposes, and described the points in form, color, age, etc., to be observed in the selection of stallions and mares for breeding purposes. For speed and endurance what is wanted is bone, muscle and high-spirited, nervous horses; while for draught, the more phlegmatic, heavy and quiet breeds are those best suited. He considered the Clyde, crossed with our Canadian mares, were the best suited for Canadian climate, and the half-bred horse was best as a general pur-

pose horse. An interesting discussion followed, in which some of the members considered that the Percheron Norman horse was superior to the Clyde as a draught horse. After votes of thanks had been passed to the readers of the papers, the meeting adjourned.

At the next meeting Prof. Osler and Mr. A. W. Clements will give the results of some experiments they have been conducting with regard to the life history of the *Tenia medio canu-latas*, and Mr. C. B. Robinson will read a paper on "Septicæmia."

The regular fortnightly meeting of this Association was held in the lecture room of the Montreal Veterinary College, on Thursday evening, February 2d, the second Vice-President, Dr. Wm. McEachran, in the chair.

Mr. C. B. Robinson read an essay upon "Septicæmia," giving a full description of that interesting disease, and the best means to be adopted for its prevention and cure. It was listened to with marked attention throughout, and, at its close, a lively discussion ensued.

Prof. Wm. Osler then read an account of an experiment recently conducted by himself, with the assistance of Mr. Clement, at the Veterinary College, in which fifty segments of the *Sœnia mediocanellata*, or common tape-worm of this country, had been fed to a calf three days old. Accurate observations of the temperature and pulse of the animal were taken daily for seven weeks, at the end of which time the symptoms indicated that the parasites had entered upon the cystic stage, or were "measled." The calf being slaughtered, the post mortem revealed the presence of the entozoa in various parts of the body, but particularly in the voluntary muscles, where they appeared as little translucent cysts, about one-eighth of an inch long, with an opaque spot in the centre, which was the parasite or "measle." Specimens of the muscles containing the cysts were exhibited, and the speaker referred to the curious fact that although the tape-worm derived from measly veal was far more common in this country than that derived from measly pork, yet measly veal was rarely if ever de-

tected unless, as in this case, from experiment, while measly pork was comparatively of frequent occurrence. He thought this was probably owing to the greater transparency of the cysts in veal than those in pork and their consequent liability to be overlooked. Tape-worm is an entirely preventible disease, and it is a disgrace to the community that what could be entirely eradicated by proper hygienic measures should be as common as it is. He hoped that a systematic inspection, such as could now be carried out at the abattoirs, would do much to decrease the number of cases of this common malady. In answer to a query by Prof. D. McEachran, Prof. Osler stated that there were probably four or five hundred cases of tape-worm in the city of Montreal, and that nearly every medical man in the city had one or more cases under treatment. Mr. McEachran, after complimenting Prof. Osler on the value of this scientific investigation, as one bearing very strongly on public health, and apart from the value of such investigations to the students of both human and veterinary medicine, he had no doubt it would have a beneficial effect in demonstrating the actual necessity for proper scientific inspection of the meat supply. We have just heard that measly pork is often detected, whereas measly veal or beef was rarely discovered. Yet we are informed by Prof. Osler that the tape-worms produced from beef measles constituted nearly all the cases in the city, proving very clearly to his mind that measles in beef was far more common than in pork, and the fact of these not being found as often was due to the want of inspection, as explained by Dr. Osler, and, as they could see for themselves by the specimens of which both had been shown them, while pork measles was opaque, white, and easily seen, beef measles was smaller, transparent, except its centre, hence not so easily discovered by cursory observation. He described the symptoms produced by tape-worm as being dreadful, leading to great despondency, mental disturbance and all the horrors of the most aggravated dyspepsia. He congratulated the members of the Association on being privileged to listen to such a scientific paper on such an important subject as that just delivered in their hearing. After a few complimentary remarks by the Rev. Mr. Killigan and others, a cordial vote of thanks was

tendered to Dr. Osler and Mr. Clement, and also to Mr. Robinson, for their instructive papers.—*Gazette*, (Montreal.)

U. S. VETERINARY MEDICAL ASSOCIATION.

The regular semi-annual meeting of the United States Veterinary Medical Association will be held at Young's Hotel, Boston, on Tuesday, March 21st, at 11 A. M.

The Comitia Minora meets at 10 A. M.

C. B. MICHENER, *Sec.*

ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

The Alumni meeting of the American Veterinary College will be held in the lecture room of A. V. C., Monday, March 6, at 10 A. M.

JAS. D. HOPKINS, *Sec.*

CORRESPONDENCE.

THE OPERATION FOR CARTILAGINOUS QUITTOR.

Editor of the American Veterinary Review :

DEAR SIR.—As during the last few months I have seen the operation for cartilaginous quittor and the after treatment almost daily, my attention was specially called to your note in the November number of the REVIEW, and to Dr. Bryden's letter in the January number which I received to-day.

A few data may be of interest to him and to others.

Probably nowhere is "the operation for cartilaginous quittor" (the modified operation of Renault) so often performed to-day as it now is at your old *alma mater* at Alfort. Here, because the horses come as a last resort after the failure of other treatment; and if the disease has not made such ravages as to render all treatment hopeless, they are returned to work, at a walk, in six weeks, and can trot in three months.

The general rules for treatment here are :

1st.—When the quittor has only attacked the posterior portion of the cartilage, employ caustics, preferably the liquor vilate, rarely the hot iron, as its effects upon the sound tissues cannot be properly governed.

2d.—Should one to two months of this treatment fail, or should the quittor advance toward the anterior part of the cartilage, then operate without delay and extirpate the cartilage thoroughly.

The wall not only should be pared to a thin pelicle over the laminae, but also the sole and bar corresponding to the quittor.

After the operation the dressing is *not removed* for ten to fourteen days, unless the thermometer indicates a temperature above 102° F., after that it is renewed every few days.

Clear as the operation is, it can be easily understood that it should only be attempted by one thoroughly cognizant of his anatomy; and of equal importance is the after dressing, which should firmly adapt the parts in position.

Very respectfully yours,

RUSH S. HUIDEKOPER, M.D.

THE OPERATION FOR CARTILAGINOUS QUITTOR.

DEAR MR. EDITOR.—The prompt response from Dr. Coates to my remarks on quittor interested me very much, although at the same time it occasioned me some surprise. I had no idea that the term quittor was used in such a general way, and consequently did not intend to be understood as claiming that sinuses of the coronet, the results of wounds, treads, pricks, or even what some call suppurating corns, would require six or eight months to get well in.

True quittor, as I regard it, needs no such accidents to produce it, neither could its development be influenced by such recent injuries, excepting in a foot predisposed to the disease. The foot subject to quittor may never have received any external injury; it is a strong walled, deep soled hoof, hard round the coronet, often badly contracted at the quarters, the hoof corroding and injuring the rings of the bone and adjacent tissue;

the animal goes lame, there is swelling over the affected quarter with pain on pressure; in time the swelling opens, pus and matter escapes, and a true quittor is established.

An important matter to be determined seems to be whether the lesion is in the cartilage or in the coffin bone. If amputation of the cartilage will accomplish a cure within six or eight weeks from the opening of the sinus or swelling, it would certainly go far towards proving the cartilage to be the obnoxious element, and its condition the cause of the sinus and discharge.

On examining authorities, it will be found that they differ as to what constitutes true quittor.

Prof. Dick calls it "whitlow, pipes or quittor, the result of pricks from nails, etc."

Prof. Williams calls it "*A fistulous wound on any part of the coronet*, generally caused by treads, pricks in shoeing, suppurating corns or any other injury calculated to excite the suppurative action within the hoof or in the structure of the coronet."

Prof. Gamgee says "The accepted definition of quittor does not meet the case, according to our understanding of the matter, in so far as it is regarded and described as consisting of a discharge of matter from the coronet, which has been formed within the cavity of the hoof, caused by some injury, and which, so pent up and finding no means of exit below, burrows its way to the top, sinuses being established for its passage." "The above, which gives the common acceptation of what a quittor is supposed to be, is, to say the least, a vague account, but it is more than that, it is incorrect." "We may have any number of cases of matter escaping from the coronet without the semblance of quittor, according to our views and experience on the subject, and we think it important to be plain in the matter, because right and wrong notions lend to widely different courses of practice, not only when the existence of quittor is agreed on, but under less complicated diseased conditions of the foot." He continues as follows: "The fact appears to us to be that quittor is a state consequent on a deep seated lesion of the foot, in which the cartilages or frequently even the coffin bone is affected at its posterior ex-

tremity, indicated by the seat of the disease." And again: "A quittor is a sign of a complication of long standing disease of the foot, or of some serious lesion, such as the fracture of some part of the coffin bone, or an ossified cartilage, all of which pathological conditions we have found."

It is certainly very interesting to me, as Dr. Coates suggests, to know that this operation can be relied on. Although the cases given may not be altogether free from objection, yet it would be very unreasonable of me to doubt the merit of the operation and its uniform success when indorsed by those so capable of judging. I hope you will pardon me for troubling you with such long letters. Thanking you for the interest shown in the subject, I remain,

Yours very respectfully,

WM. BRYDEN.

THE OPERATION FOR CARTILAGINOUS QUITTOR.

Dear Mr. Editor:

In the November number I had the pleasure of reporting a case where the lateral cartilage of the foot was removed for cartilaginous quittor.

In the December number, Dr. Bryden, of Boston, has a letter criticising the operation in a very friendly manner, and at the same time asking for information in regard to the advisability of the same; also asking for reports from other members as to their success in operating thus.

Dr. Coates, in the February number, cites five cases, all of them acute or recent cases, in which the operation was perfectly successful.

Now, as to the case which I reported, it is true, the animal had had a disease of the cartilage for over six months, but the Doctor has misunderstood me, I did not say that the horse had been *under treatment six months*; the history of the case extended back six months from the time he was seen by any of the staff of the hospital. He was first seen by any one at the hospital, September 9th and last seen October 22d, making forty-three days in all during which the animal was under our observation. It

certainly seems to me, that if by an operation a horse with a quittor can resume his work in from six to eight weeks, it makes no difference whether the case be old or recent, the indications are to operate.

Why operate? first, to relieve the trouble, then to stop expense, and finally to relieve the horse from constant pain.

Dr. Coates cites four of his cases as in draught-horses. He operates and in eight weeks has his patients all at work, free from lameness and as good as ever. The matter of expense also enters into the question. If an owner has a horse with quittor he desires to get the horse back to his normal condition for work as soon as he can, and if the surgeon can by an operation have the horse resume his work in, say, two months, is it not better to operate and put the horse back to his work than to poultice and poultice or turn out, and at the end of six months be no nearer the end of treatment than when he began? An owner with a horse laid up has either to buy or hire. If he is going to lay up his horse for six months he buys; if for six weeks he can afford to hire, and thus save himself the expense of keeping two horses and only having the use of one, or having a horse with no work for him to do. The question will be asked, would you operate in every instance? Certainly not, but only in those cases where the indications are that a large portion of the cartilage is diseased, where the tracts are extended and where the chances are that the other tissues may become involved.

Is it a painful operation? There is no doubt it is painful, but it is an operation which when well done does not require a very great length of time, and the animal's sensibility can be deadened either by the use of chloral or some other of the anæsthetics.

It leaves only a simple wound to be cleansed, heals readily and, as far as the horse is concerned, does not interfere at all with his future usefulness.

There is in the hospital at present a trotting mare which some six weeks ago had a suppurative corn involving the cartilage. She was treated outside by one of the profession, but about a week ago was sent to the hospital. She was operated on and at the time of going to press is doing well.

NEWS AND SUNDRIES.

HONORS TO A VETERINARY SURGEON.—Mr. H. Bouley, Member of the Institute (Paris), Inspector-General of the Veterinary Schools (France), has been raised to the rank of Oommander of the Legion of Honor.

VALUE OF CATTLE IN PENNSYLVANIA.—Pennsylvania had last year 851,790 cows, worth \$18,625,000; and 674,000 oxen and other cattle, valued at \$14,962,000.

CONDEMNED MEAT IN NEW YORK MARKET.—Reports come to the press that the parties who are inspecting and condemning cattle affected with pleuro pneumonia in the vicinity of New York are placing the condemned meat upon the market. We trust this is not true.

NEW YORK DOG SHOW.—The Westminster Kennel Club have again been fortunate to secure the American Institute for their Bench Show, to be given April 18, 19, 20 and 21. All lovers of dogs will be glad to know this, as there is no better place in the world for a show of this kind.—*Turf, Field and Farm, Feb. 3d.*

CANADIAN RESTRICTIONS MODIFIED.—The Canadian Government has given orders to admit the importation of American cattle under quarantine regulations, a course American and Canadian breeders have anxiously desired, in order to allow an interchange of blood between valuable herds.

ANTHRAX IN IOWA.—A number of cattle are dying in Mills County, Iowa, from what is supposed to be anthrax. A farmer named Joseph Boggs skinned one of his cows and threw the carcass to his fattening hogs, and the next morning every hog in the pen was dead, nine in number.—*Minnesota Farmer.*

FREEMARTINS BREEDING.—It is often asserted, and many breeders are positive, that a freemartin cow will not breed. As I have one that has bred, it may be of interest to many of the readers of your valuable paper to know the facts. On the 17th day of January, 1880, Rhodomela dropped freemartins. The bull calf was dropped first, the cow calf immediately after. On the 29th day of April, 1881, we noticed the latter was in heat,

although only fifteen months old. I had her served, as her breeding was so good that I was very anxious to get a calf from her, if possible. The result is very satisfactory, as early this morning she dropped a fine cow calf.—*Cultivator and County Gentleman*.

HOW LONG HORSES CAN LIVE WITHOUT FOOD.—Several interesting experiments have recently been made in England to find out how long a horse can live without food, and how little he can live on. It has been proved that a horse can live twenty-five days on nothing but water, and it can live seventeen days without either eating or drinking; it will only live five days on solid food without enough to drink. It follows, therefore, that water constitutes a very important item in the nourishment required by a horse. The fact has been stated that after having been deprived of water for three days a horse has drunk fifty-two litres in three minutes.—*Turf, Field and Farm*.

A PROLIFIC HEIFER.—The Jersey Heifer Tina, dropped March 28, 1879, dropped her first calf April 13, 1880, at 1 year and 16 days old; her second calf March 12, 1881, at the age of 1 year, 11 months, and 12 days, and the third calf Jan. 27, 1882, at the age of 2 years, 9 months and 29 days. The last two calves were heifers. She gave the first season, in June, 11 quarts per day, making eight pounds 11 ounces of butter per week. The second year, in June, she gave 27 pounds of milk per day, making 2 pounds $\frac{1}{2}$ ounce of fine quality butter per day. At this date, (Jan. 30, 1882) she is giving 11 quarts per day. She is strong and healthy; live weight about 450 pounds; color dark fawn and white; dam Bessie; g. d. Lilly, from Wm. Redmon's herd, South Orange, N. J.; sire General P.; g. s. Gen. P. Bellingier; imp. Alpha.—*The Cultivator and County Gentleman*.

A SIX-LEGGED COW.—The butchers in Washington Market were greatly exercised recently about the presence of a live cow on exhibition in their midst with six legs and a vertebræ as crooked as the branch of a sour apple tree. She was brought by a man named Charles Andres all the way from Colorado, where she was picked out of a herd of cattle grazing on the plains, but the herd was in complete ignorance that any one of its number carried six legs, otherwise a mass meeting might have been held

and the innovation of a cow wearing six legs, when other cows were limited to four, vigorously denounced as a monopoly. The cow in question, which was exhibited in a shed at the rear of West Washington Market, was of average size and covered with a suit of somewhat rough, brown hair. The forehead and breast were white and the horns curved forward in crescent shape. Her keeper said her age was six years, that she was gentle, and recognized him whenever he placed his hand upon her. She stood on four legs like any other cows, and the two extra legs growing out of the top of the shoulder blade dropped on either side, and in shape were exactly like a pair of hind legs. The leg on the right side, terminating in an elongated hoof, measured twenty-six inches and was at least twenty inches from the ground. The leg on the left side measured sixteen inches and was about thirty inches from the ground and evidently undeveloped. Looking from the tail of the animal toward the head the spine assumed a zigzag line, and the buttocks were widely separated, while the hips were unusually prominent. She eats bran and hay like any other cow and drinks a pail of water a day. She has fine bright eyes, and the white hair curling over her forehead gives her quite a fashionable appearance.—*New York Herald*.

EXCHANGES, ETC., RECEIVED.

HOME.—Turf, Field and Farm, Country Gentleman, Proceedings of the Medical Society of the County of Kings, Bulletin of the National Board of Health, N. Y. Weekly Times, Breeders' Gazette, American Cultivator, Medical Record, Prairie Farmer, American Agriculturist, Medical and Surgical Reporter, Ohio Farmer.

FOREIGN.—Recueil de Medecine Veterinaire, Archives Veterinaires, Journal de Zootechnie, Annales de Bruxelles, Veterinarian, Veterinary Journal, Clinica Veterinaria, Revue fur Thierheilkunde und Thierzucht, Revue de Hygiene, &c., &c.,

JOURNALS.—Daily Register (Mobile), Minnesota Farmer, Our Dumb Animals, Nebraska Farmer, College and Clinical Record, Western Medical Reporter, New England Homestead, New York Medical Abstract, &c.

PAMPHLETS AND BOOKS.—The Register of Veterinary Surgeons (London), Medical Progress, Proceedings of the British National Veterinary Congress, Trance and Trancoidal States in the Lower Animals, by G. M. Beard, M. D.

COMMUNICATIONS.—M. T. Tracy (Lancaster, Pa.), F. H. Parsons (Poughkeepsie, N. Y.), R. B. Corcoran, U. S. A., W. Bryden (Boston, Mass.), R. T. Huidekoper, M. D. (Alfort, France), E. T. Carter (Pittsburg, Pa.), A. Martin (Cleveland, Ohio), J. C. McKenzie (Rochester, N. Y.), B. McInnes (Charleston, S. C.), E. Decroix (Paris, France), A. A. Holcombe (Fort Lavenworth, Kansas), Prof. Osler, M. D. (Montreal, Canada).

There is also another case in the hospital with another quittor to be operated on, and I hope to be able to report them for the *REVIEW* in some future issue.

I have information from three other members of the profession who have operated for quittor, and they report their cases to have recovered in from four to six weeks. I hope that any of the readers of the *REVIEW* who have had experience with this operation will report the case for publication.

M. BUNKER, B.S., D.V.S.

OPERATION FOR CARTILAGINOUS QUITTOR.

Editor American Veterinary Review :

Dr. Bryden furnishes a criticism to one of your late issues, on the above named subject. I confess it difficult to understand exactly why he criticises the operation. He admits never having performed it, and I infer from his article that he never saw it performed, and that he is unacquainted with the object for which the operation has been adopted. He "hopes the operation may prove as successful on a quittor just forming as one 'over six months' old!" Indeed! Why not remove all the cartilages as a preventive measure against cartilaginous quittor? I suppose on the same principle we should treat pleurisy by puncturing the thorax at the onset on the disease, so that if hydro thorax does take place there will be a hole in it ready for drainage. What is the use in waiting until there is water in the chest? If puncturing dosen't cure the pleurisy when "just forming," operating when there is water there may be "only another of the ingenious tortures to which the profession so often subjects its poor patients." The profession in my neighborhood doesn't remove cartilages *before they are diseased*. Neither do they treat cases of quittor "*six or eight months from the first opening of the sinus*." They don't adopt that kind of treatment, for it is not considered either humane or least expensive.

Yours, &c.,

L. L.

NOTICE.

DEMONSTRATOR OF ANATOMY TO THE AMERICAN VETERINARY COLLEGE.

The position of Demonstrator of Anatomy in the faculty of this institution is open to competitive examination. The candidate must be a regular graduate of veterinary medicine and in good standing. The candidate must pass a written and oral examination before a board of examiners appointed by the Board of Trustees of the college, and must deliver a lecture upon anatomical preparations, to be selected by the examiners.

The examination will take place on or about the 1st of May. Applications should be directed to Prof. F. D. Weisse, M.D., Secretary of the Board of Trustees, 51 West Twenty-second street, New York.

HILL'S BOVINE PATHOLOGY.

Wm. R. Jenkins begs to inform the veterinary profession that the delay in the publication of Prof. Hill's new work on Bovine Pathology is due to the difficulty of obtaining satisfactory colored illustrations for the work. The work is entirely written and ready for publication, and when the difficulty concerning the plates is obviated, will be issued at once. Advices from London concerning Prof. Fleming's work are that he has ready about 300 wood-cuts, but that its publication is yet indefinite, owing to the vastness of the subject, which increases as he writes.

Mr. Jenkins has just published the first American edition of Armatage's Veterinarian's Pocket Remembrancer, at a price considerably less than the English edition.

